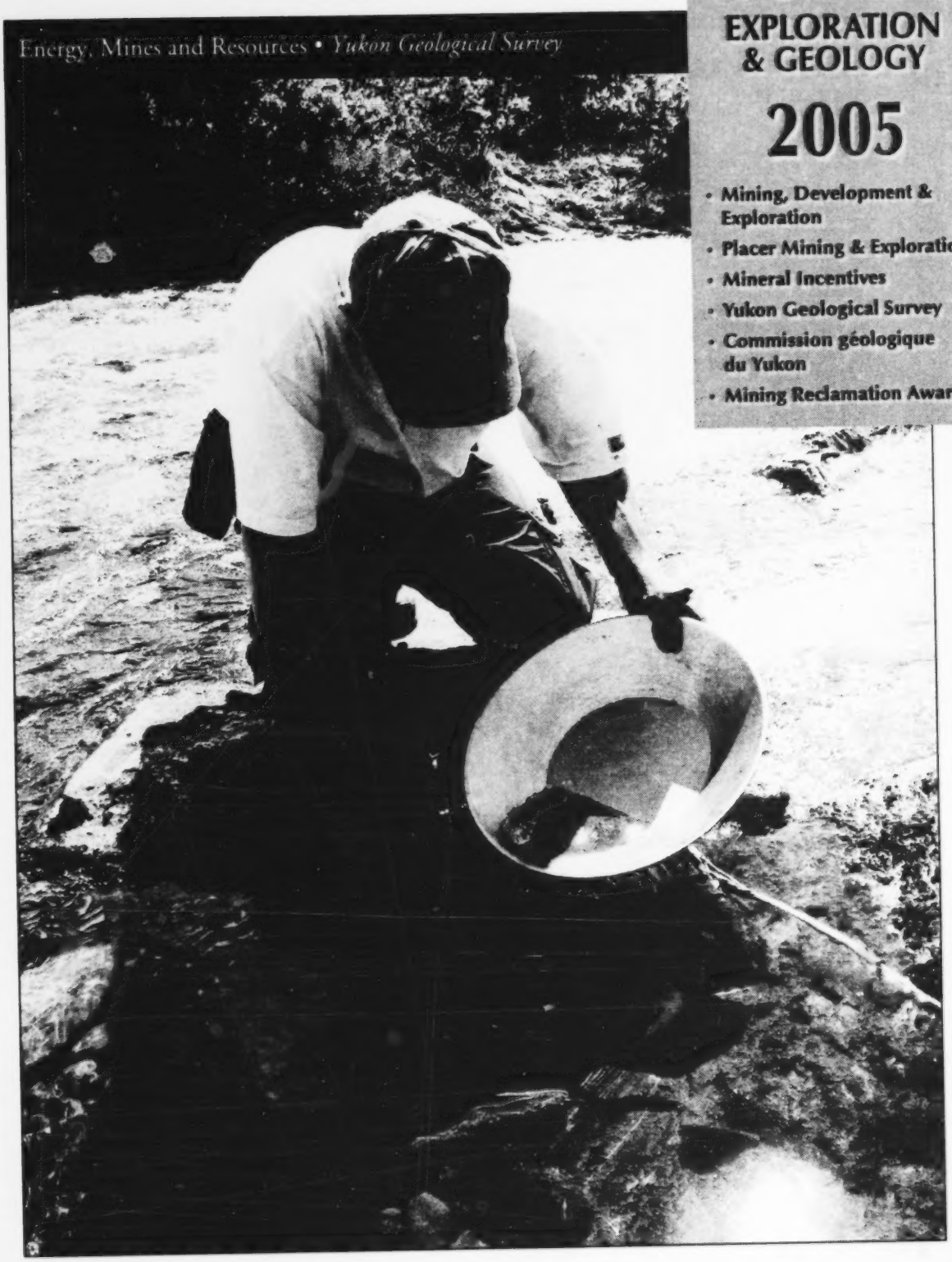

YUKON
EXPLORATION & GEOLOGY
2005

- Mining, Development & Exploration
- Placer Mining & Exploration
- Mineral Incentives
- Yukon Geological Survey
- Commission géologique du Yukon
- Mining Reclamation Awards

YUKON GEOLOGICAL SURVEY

Yukon
Energy, Mines and Resources

YUKON MINING, DEVELOPMENT AND EXPLORATION OVERVIEW

2005

Edited by
D.S. Emond, G.D. Bradshaw, L.L. Lewis and L.H. Weston

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PHOTOGRAPHS

Front cover: Jeff Bond is sampling stream sediments for heavy minerals in Mendocina Creek, Big Salmon Range. Photo by Amber Church, Yukon Geological Survey.

Back cover: Wally Hyde, Yukon's 2005 Prospector of the Year, receiving his award at the 2005 Yukon Geoscience Forum, November 2005. Photo provided by V. Fedoroff, Whitehorse Star.

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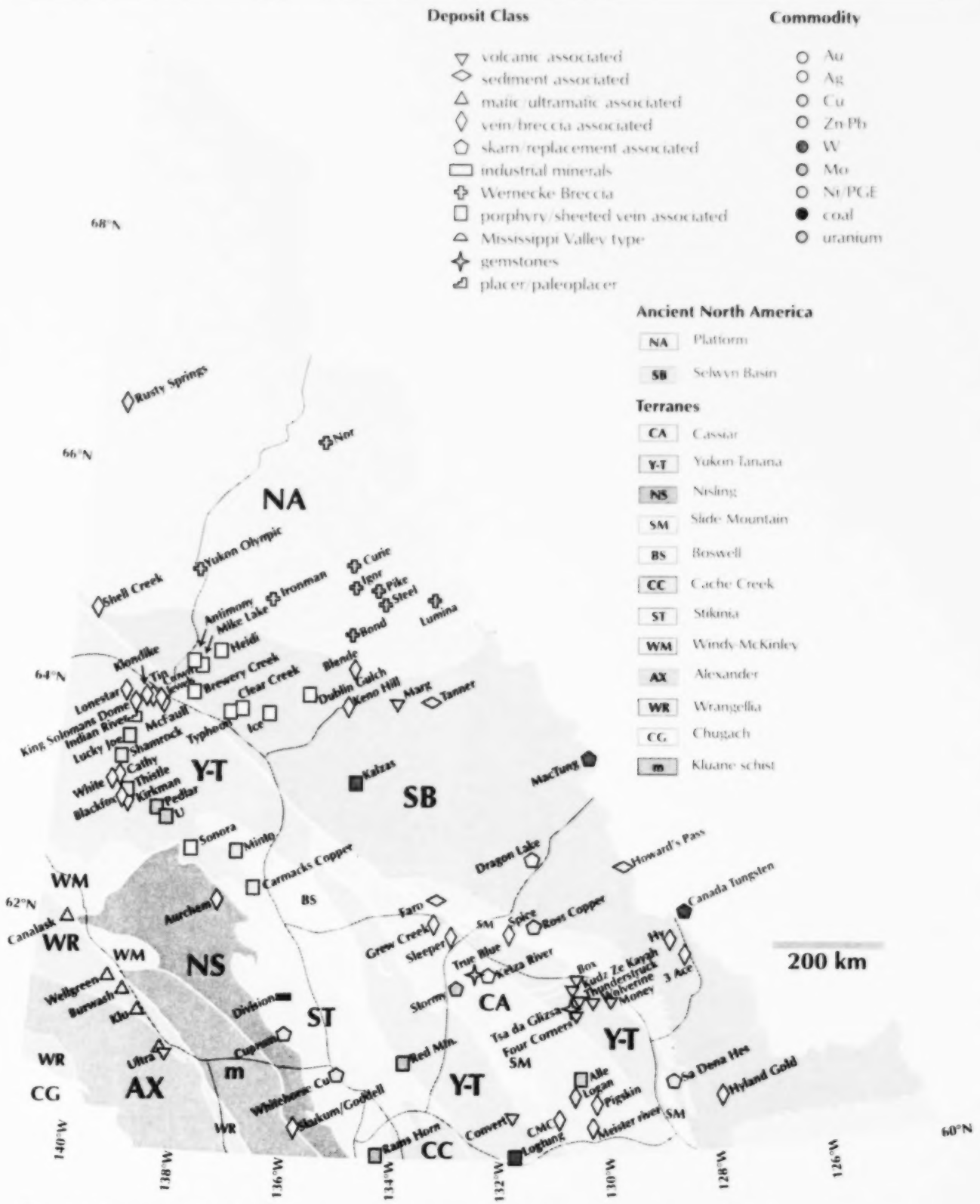


Figure 2. *Location of Yukon's 2005 exploration projects with greater than $25 000 in expenditures.*

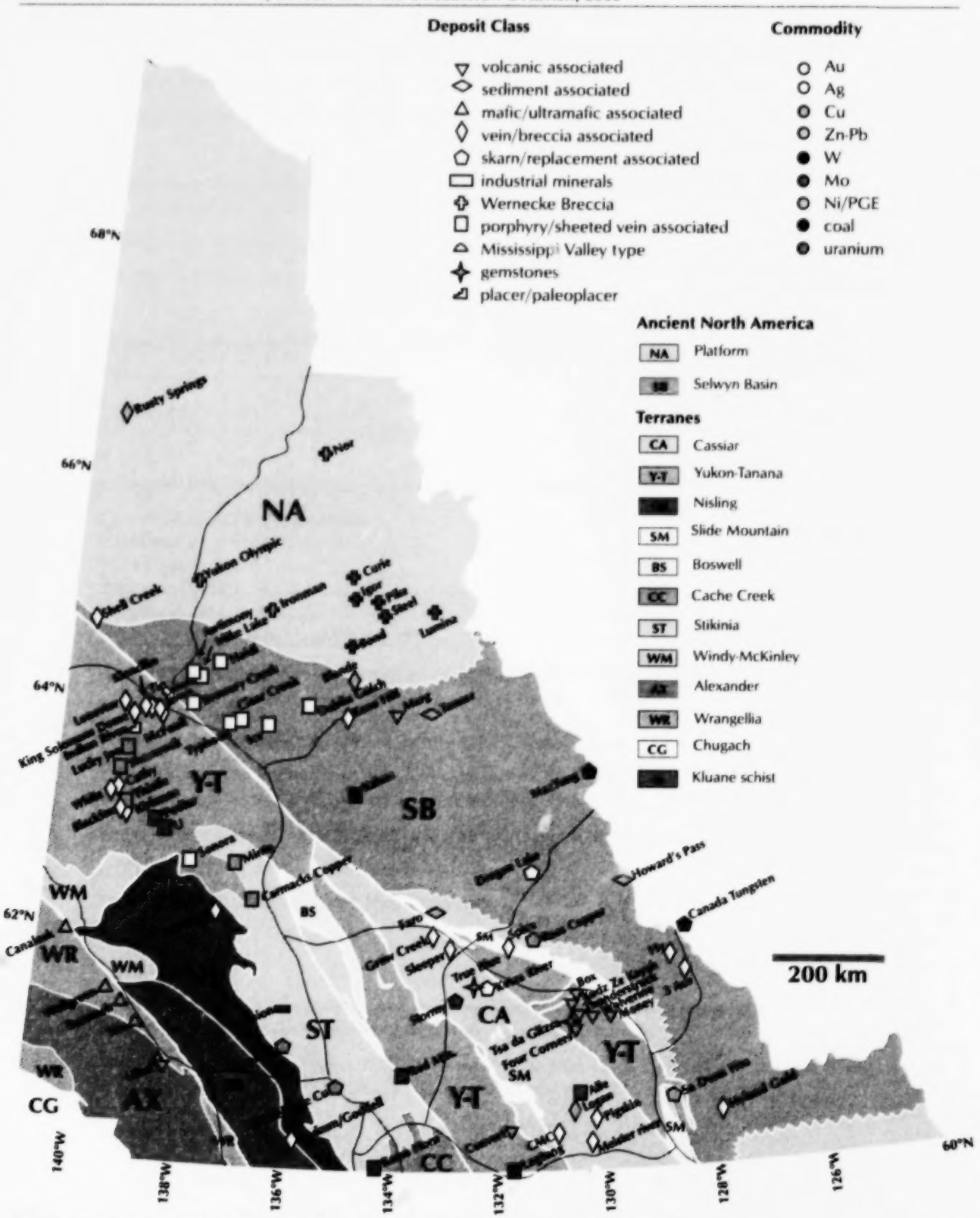


Figure 2. *Location of Yukon's 2005 exploration projects with greater than $25 000 in expenditures.*

Yukon Mining, Development and Exploration Overview 2005

Mike Burke[1]
Yukon Geological Survey

Burke, M., 2006. Yukon Mining, Development and Exploration Overview 2005. *In:* Yukon Exploration and Geology 2005, D.S. Emond, G.D. Bradshaw, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 2-40.

ABSTRACT

Exploration expenditures in Yukon have continued their dramatic rise for the third consecutive year, with an estimated $53 million spent exploring for a wide range of commodities. Base metal exploration (mainly zinc) has benefited the most from this resurgence. Exploration for copper, tungsten and uranium has also substantially increased this year, as has exploration for precious metals. The majority of expenditures were on advanced stage projects. Approximately 30 properties were subjected to drilling programs, many with the intent to upgrade existing resources, while several other projects were subjected to their first ever drilling.

Three projects are currently approaching production decisions: Yukon Zinc Corp.'s Wolverine (zinc-silver-lead-copper-gold), Sherwood Copper Corp.'s Minto (copper-gold-silver) and Cash Minerals Ltd.'s Division Mountain (coal) deposits. All three projects conducted advanced exploration in support of feasibility studies, which are expected to be released in the last quarter of 2005 and the first quarter of 2006.

RÉSUMÉ

Les dépenses d'exploration au Yukon ont encore augmenté de manière saisissante et ce pour la troisième année consécutive; on estime qu'il s'est dépensé 53 millions de dollars en travaux d'exploration à la recherche d'une gamme étendue de produits. Cet accroissement a profité surtout les projets d'exploration à la recherche de métaux communs (et surtout du zinc). Les travaux d'exploration à la recherche de cuivre, de tungstène et d'uranium ont aussi considérablement augmenté cette année tout comme ce fut le cas pour les métaux précieux. Les dépenses ont été en majorité consacrées à des projets qui en étaient aux stades avancés. Des programmes de forages ont été menés dans environ 30 propriétés, dans plusieurs cas dans le but d'ajouter aux réserves existantes de ressources alors que pour plusieurs autres projets il s'agissait des premiers forages exécutés.

Des décisions d'entreprendre la production sont imminentes aux trois gisements suivants : Wolverine (zinc-argent-plomb-cuivre-or) de la Yukon Zinc Corp., Minto (cuivre-or-argent) de la Sherwood Copper Corp. et Division Mountain Ltd. (charbon) de Cash Minerals. Dans le cadre de chacun de ces projets des travaux d'exploration préliminaires ont été exécutés à l'appui d'études de faisabilité qui devraient être diffusées au dernier trimestre de 2005 et au premier trimestre de 2006.

[1]mike.burke@gov.yk.ca

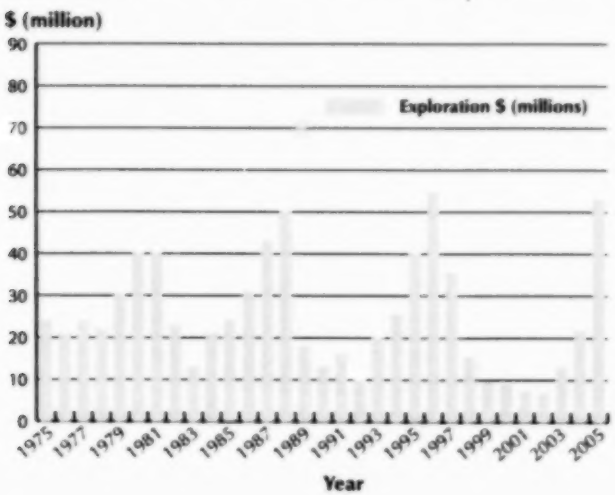
INTRODUCTION

Mineral exploration expenditures have continued their dramatic rise for the third consecutive year, with an estimated $53 million spent in 2005 exploring for a wide range of commodities. Expenditures in 2004 were $22 million (Fig. 1). Approximately 70% of expenditures were spent on the exploration of base metals, 20% for precious metals and the remainder on gemstones and coal. The location of projects with expenditures greater than $25 000 is shown in Figure 2 (on previous page spread). Claim staking remained at significant levels (5716 claims, Fig. 3) and claims in good standing (Fig. 4) have increased slightly over 2005 (50 373 claims). Three projects are currently approaching the production stage; these consist of Yukon Zinc Corporation's Wolverine (zinc-silver-lead-copper-gold), Sherwood Copper Corporation's Minto (copper-gold-silver) and Cash Minerals Ltd.'s Division Mountain (coal) deposits. All three projects conducted advanced exploration in support of feasibility studies which are expected to be released in the last quarter of 2005 and the first quarter of 2006.

The Government of Yukon continued to support the mineral industry in several areas including: 1) the Yukon Mining Incentives Program which offered approximately $1.09 million to 63 successful applicants (Traynor, 2006); and 2) the Yukon Mineral Exploration Tax Credit which offers a refundable corporate and personal income tax credit of 25% of eligible mineral exploration expenditures incurred by qualified individuals and corporations conducting off-minesite exploration in the Yukon between April 1, 2004 and March 31, 2007. Control over the territory's natural resources was recently transferred from Canada to the Yukon government. Decisions regarding oil and gas, mining, lands, forests and water are now made by the Yukon government. Internally, the government has initiated an Integrated Resource Management Strategy. This strategy streamlines the review process by addressing policies and legislation gaps, and it establishes better collaboration between departments.

An example of this strategy is the Project Management Process that assists mining companies in their efforts to secure permits for development proposals. Project coordinators are assigned to individual projects to assist with the reviews and timely resolution of issues for each project. The project coordinators report to a team of deputy ministers that is responsible for regulatory approvals. This committee is chaired by Energy, Mines and Resources.

Figure 1. *Exploration expenditures 1971 to 2005 (estimated).*



Currently, five Yukon projects have been assigned project coordinators. These consist of Yukon Zinc Corporation's Wolverine (zinc-silver-lead-copper-gold), Sherwood Copper Corporation's Minto (copper-silver-gold), Cash Minerals Ltd.'s Division Mountain coal, Western Silver's Carmacks Copper (copper-gold) and Tintina Mines Ltd.'s Red Mountain (molybdenum) deposits.

The Government of Yukon also continued to maintain current levels of funding for geoscience projects under the auspices of the Yukon Geological Survey. Of further interest, 11 of 13 Yukon First Nations have ratified their land claim agreements.

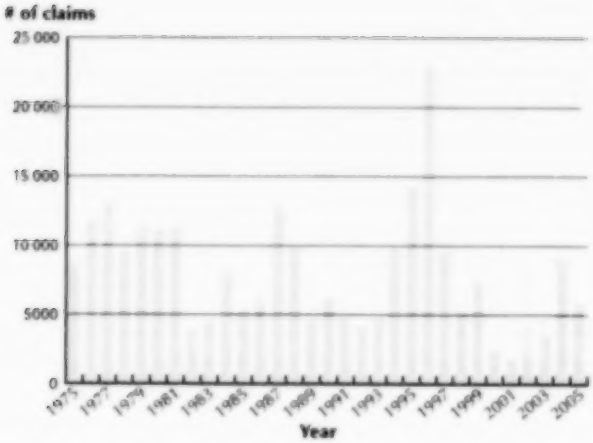


Figure 3. *Claims staked 1975 to 2005.*

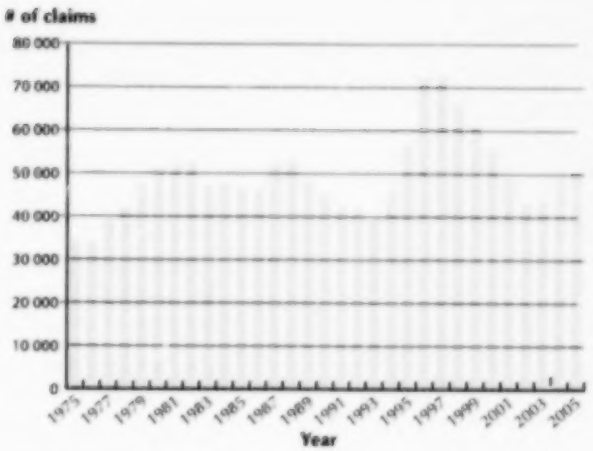


Figure 4. *Claims in good standing 1975 to 2005.*

Base metal exploration (mainly zinc) has benefited most from the resurgence in exploration expenditures. The largest exploration program in Yukon was the Wolverine project of Yukon Zinc Corporation in the Finlayson Lake volcanogenic massive sulphide (VMS) district; over $20 million were spent on this project. Yukon Zinc also conducted exploration on several of their other projects in the Finlayson Lake district. Exploration for zinc has resumed in the Selwyn Basin, within a late Precambrian-Devonian depositional basin, which is well known to host significant zinc-lead-silver sedimentary exhalative deposits. Pacifica Resources acquired the Howard's Pass sedimentary exhalative deposits and conducted a major drilling program on the shallow portions of the known deposits, as well as on exploration targets within other areas of prospective stratigraphy.

Exploration for copper, tungsten, uranium and molybdenum has also substantially increased this year. Copper exploration was targeted in several different geological settings throughout Yukon. The largest project was conducted by Sherwood Copper Corporation after acquiring 100% of the Minto deposit. The Minto deposit is an intrusion-related magmatic-hydrothermal system that displays characteristics of both porphyry (R. Tafti and J.K. Mortensen, 2004) and iron-oxide-copper-gold (IOCG) systems. Other projects that have copper as the primary commodity of interest are the Lucky Joe project of Kennecott Canada/Copper Ridge Exploration, which is a new intrusion-related magmatic-hydothermal target in the Stewart River area south of Dawson, as well as several projects targeting IOCG mineralization hosted in Wernecke Breccias in the northern Yukon. Copper-gold skarn and porphyry mineralization in the Whitehorse Copper Belt also continued to receive some attention. Copper-nickel-platinum group element (PGE) mineralization in the Kluane mafic-ultramafic belt of western Yukon had an increase in activity; exploration programs were conducted at Northern Platinum/Coronation Minerals Wellgreen property, Golden Chalice/Strategic Minerals Burwash property and Resolve Ventures' Klu property (optioned from Inco Ltd.). Falconbridge Ltd. also became active in the Kluane mafic-untramafic belt late in 2005 by optioning the Canalask property from StrataGold Corporation.

The strength in the tungsten price has resulted in a resumption of production at North American Tungsten Corporation's Cantung mine located in the

Northwest Territories but accessed through the Yukon. The first tungsten concentrates from the mine were shipped in mid-October, 2005. The annual concentrate production capacity from the mine is 400 000 metric tonne units.

Tungsten exploration increased as a result of drill programs at North American Tungsten's MacTung deposit and at Copper Ridge Exploration's Kalzas occurrence.

Uranium exploration was focused mainly in the Wernecke Mountains area of northeast Yukon where many occurrences of uranium-enriched IOCG mineralization are known to exist. Companies such as Cash Minerals Ltd. and Signet Minerals Inc. are active in the region, having recognized the under-explored potential of unconformity-related uranium occurrences.

Molybdenum has re-emerged as a commodity of interest for exploration companies, and in 2005, the Red Mountain deposit of Tintina Mines conducted engineering and environmental studies on their project in preparation for a proposed underground exploration program for 2006. Furthermore, small exploration programs were performed on the Stormy molybdenum deposit, acquired by E-Energy Ventures, and the Rams Horn molybdenum occurrence of Ordorado Resources.

Exploration for precious metals has also benefited from the increase in exploration expenditures. Epigenetic gold mineralization is recognized in several different settings within Yukon. These consist of intrusion-related gold, associated with mid-Cretaceous plutonism; orogenic gold, related to Jurassic and Eocene events; epithermal gold, related to late Cretaceous to Eocene sub-aerial volcanism; and gold skarns, related to Cretaceous, oxidized and reduced intrusions. Exploration for intrusion-related gold occurred mainly within the western portion of the Tintina Gold Belt between Dawson and Mayo where accessibility is greatest. StrataGold Corporation conducted the largest drill program at the Dublin Gulch deposit, north of Mayo. Drilling also occurred at Acero-Martin Industries Ice property, as well as at the Mike Lake project of Bashaw Capital which was drilled for the first time. A large number of orogenic, gold-vein targets are being explored in the Dawson-Stewart River area, with the most advanced program being the Lone Star property of Klondike Star Corporation. Recent work by Craig Hart of the Yukon Geological Survey (Hart and Lewis, 2006) has classified the belt of gold occurrences in the Hyland River area of eastern Yukon as orogenic. Epithermal gold was targeted at the Grew Creek deposit of Freegold Ventures Inc. in the Faro area and by Tagish Lake Gold Corporation at their Skukum Creek deposit south of Whitehorse.

Exploration of properties with high silver potential has also increased as is shown by the renewed exploration of several projects in the Rancheria district of southern Yukon. Work in this area included a drilling program by CMC Metals Ltd. at their newly acquired CMC property. Furthermore, exploration for silver is expected to increase substantially in 2006 with recent developments in the Keno Hill Silver mining camp; Alexco Resource Corp. has an Agreement for Purchase and Sale for United Keno Hill Mines (UKHM). The Agreement of Purchase and Sale allows until March 31, 2006, if necessary, for the completion of an initial closing that is subject to negotiation of a subsidiary agreement between Alexco and the governments of Canada and Yukon. The subsidiary agreement addresses possible solutions to the long-term environmental care, maintenance and remediation of the UKHM mine site. Negotiations regarding the key terms of the subsidiary agreement were satisfactorily carried out during the fall of 2005.

True North Gems conducted bulk sampling for emeralds on their Tsa Da Glisza property. The company also processed the bulk sample acquired in 2004 from their True Blue property, and it was proven to contain blue beryls.

BASE METALS

VOLCANIC ASSOCIATED

Exploration for volcanic-hosted massive sulphide (VHMS) deposits occurred mainly in variably metamorphosed Upper Paleozoic sedimentary and volcanic rocks of the Yukon-Tanana Terrane and in Selwyn Basin, a predominantly off-shelf metasedimentary and metavolcanic sequence deposited west of ancestral North America. In Yukon-Tanana Terrane the massive sulphide deposits formed in continental-arc and back-arc-basin settings during rifting from the continental margin. Since the initial discovery of the **Kudz Ze Kayah** (Yukon MINFILE[2] 105G 117) deposit by Cominco Ltd. in 1994, four additional deposits (**Wolverine, GP4F, Fyre** and **Ice**; Yukon MINFILE 105G 073, 143, 034, 118, respectively) and numerous occurrences have been discovered in the Finlayson Lake district of southeastern Yukon. The majority of the exploration activity for VHMS deposits occurred in the Finlayson Lake district, however, exploration resumed in rocks of the Selwyn Basin with a drilling program at Yukon Gold Corporation's **Marg** deposit northeast of Mayo (Yukon MINFILE 106D 009).

The largest exploration program in Yukon was carried out by Yukon Zinc Corporation (formerly Expatriate Resources Ltd.) at their **Wolverine** zinc-silver-copper-lead-gold deposit (Yukon MINFILE 105G 073). The company conducted a program of test mining, definition drilling, metallurgical studies and other related work in support of completion of a bankable feasibility study being conducted by Hatch Associates Ltd. The program began early in the year with the construction of a winter road into the property to mobilize the equipment and materials necessary for the underground test mining (Fig. 5). The company submitted its environmental

[2]*All Yukon MINFILE references are found in Deklerk and Traynor (2005).*

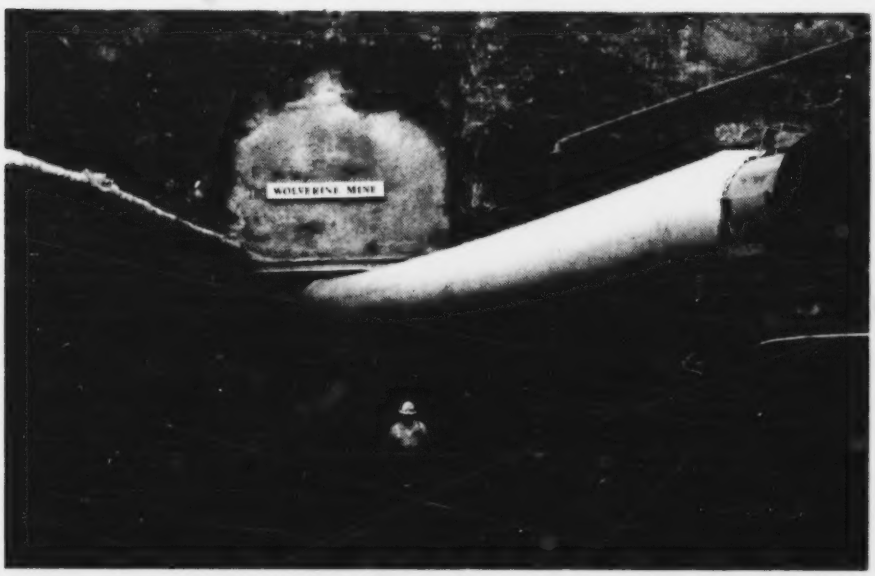


Figure 5. *Exploration portal at the Wolverine deposit.*

assessment report (EAR) on October 28, 2005. The submission of the EAR sets in motion a public review and permitting process. The issuance of a water and mine-production licence will allow mine construction to begin. The company also reached a socio-economic participation agreement with Ross River Dena Council for formalizing its participation in the exploration and development of the Wolverine deposit and Yukon Zinc's extensive exploration lands in the Finlayson district. Ross River Dena Council represents the Kaska Nation, whose traditional territory encompasses Yukon Zinc's mineral claims within the Finlayson Lake district.

The Wolverine deposit, in all categories, is a 6 237 000-tonne resource, grading 12.66% Zn, 1.55% Pb, 1.33% Cu, 371 g/t Ag and 1.76 g/t Au. Currently, the probable diluted mining reserve (determined by Hatch Associates Ltd. in a November, 2000 pre-feasibility study) is 3 470 000 tonnes grading 12.43% Zn, 1.44% Pb, 1.37% Cu, 336.6 g/t Ag and 1.59 g/t Au (using a 4-m minimum thickness of the sulphide deposit) and will provide an eight-year mine life. The deposit was intersected with 56 drill holes totalling 11 713 m in the 2005 exploration program. This will upgrade the current resource figures and provide a more detailed outline of the orebody. This orebody has been intersected by 190 drill-holes to date. The deposit was accessed by a 5 x 5-m decline that will serve as the main haulage ramp during production. An access from the main haulage exposed a 110-m strike length of the deposit in a test stope. The ground conditions, particularly in the hanging-wall argillite, were better than expected, considering the poor quality of the host rocks in drill core.

Figure 6. *First piece of sulphide mineralized rock from the test mining at Yukon Zinc Corporation's Wolverine deposit.*

Test mining was successfully conducted in both the thinner margins of the deposit and within the thicker portions of the massive sulphide mineralization (Fig. 6). A five-tonne bulk sample was collected and will be used for completion of the metallurgical test work, as well as providing detailed paste backfill and additional dense media separation information. Dense media separation studies indicate that dilution encountered in the thinner portions of the deposit can be separated before material is processed in the mill. This will allow mining of the thinner, high-grade portions of the deposit and potentially upgrade thicker intersections of the orebody that contain some internal bands of barren argillite. The bankable feasibility study is scheduled for release in the first quarter of 2006, with a production decision to follow shortly thereafter.

Yukon Zinc holds title to over 640 km^2 of claims in the Finlayson Lake district. The company conducted a small drill program on the **Thunderstruck** (NTS 105G/8) discovery where zinc-silver-copper-lead-gold-bearing massive sulphide mineralization was intersected during drilling in 2004. Yukon Zinc

also optioned the **Money** copper-zinc-silver-gold property (Yukon MINFILE 105H 078) from YGC Resources. The Money claims are located approximately 5 km east of the Wolverine deposit. The claims encompass a younger succession of Pennsylvanian- to Permian-aged rocks, known as the Campbell Range succession, which hosts pyritic massive sulphide mineralization with minor copper, zinc, silver and gold. Yukon Zinc conducted a program of geological mapping and sampling on the claims.

Strategic Metals Ltd. explored the **Four Corners** Cu property (Yukon MINFILE 105G 146) located north of the Fyre Lake deposit in the Finlayson Lake District. The company conducted a program of prospecting and soil geochemistry surveys, and discovered a copper soil anomaly from limonitic float which assayed up to 0.97% Cu. The property is underlain by mafic metavolcanic rocks, and was previously explored for its emerald potential.

Stategic also conducted detailed prospecting and hand-pitting on the **Convert** lead-zinc-silver property (Yukon MINFILE 105B 143) in southern Yukon. Recent mapping by the Ancient Pacific Margin NATMAP project assigned rock units in this area to Yukon-Tanana Terrane. The company reported that assays from a float boulder of mineralized, felsic exhalative mineralized rock assayed up to 12.30% Pb, 4.09% Zn and 411 g/t Ag. The float was discovered in an area marked by the following: a series of strong gossans; a 2500-m-long zone of moderately to strongly anomalous lead-zinc soil geochemical values; and a laterally extensive barite horizon. The float was located 1.3 km from the closest drill hole. Previous drilling in the zone intersected values of 9.41% Zn, 0.03% Pb and 25.6 g/t Ag across 0.6 m.

Yukon Gold Corporation explored the **Marg** copper-lead-zinc-silver-gold deposit (Yukon MINFILE 106D 009) with a late-season diamond-drilling program. The Marg deposit is located approximately 80 km northeast of Mayo in central Yukon and is hosted in Devonian- to Mississippian-aged Earn Group volcanoclastic and sedimentary rocks of the Selwyn Basin. The property was last drilled in 1997. In 2000, a program of geological mapping, core re-logging, soil sampling and prospecting led to an updated structural interpretation of the deposit, leading to new potential stratigraphy, and expansion of the deposit. Most recent drilling indicated resources of 4 646 200 tonnes grading 1.80% Cu, 2.57% Pb, 4.77% Zn, 65 g/t Ag, 0.99 g/t Au, and an inferred resource of 880 800 tonnes grading 1.55% Cu, 1.90% Pb, 3.75% Zn, 50.4 g/t Ag, 0.95 g/t Au on the property. This year's program of four drill holes, totalling 1200 m, was completed in November. Drill holes 84 and 85 were drilled within the existing deposit to upgrade the inferred resource, while drill hole 86 and 87 were drilled outside the known resource, and will expand the deposit (Table 1).

Table 1. Drill intersection results from the Marg property.

Hole number	Intersection (m)	Cu %	Pb %	Zn %	Au g/t	Ag g/t
84	3.17	2.17	2.45	5.04	0.64	57
85	6.12	2.84	2.38	5.48	0.55	48
86	3.59	2.19	2.89	5.81	0.84	69
87	2.37	2.20	2.84	5.36	1.18	56
	2.70	2.08	1.93	4.02	0.71	48

A new three-dimensional model of the Marg deposit will be constructed in anticipation of an updated resource and preliminary economic assessment study due in 2006.

Klondike Star Mineral Corporation conducted a program of geological mapping, prospecting and ground geophysics on the **Ultra** zinc-copper-lead property (Yukon MINFILE 115B 008) located approximately 40 km northwest of Haines Junction, in southwestern Yukon. The Ultra property hosts two styles of mineralization: volcanic-associated copper-zinc-silver-gold, and mafic/ultramafic-

associated nickel-copper-platinum-palladium-gold. Pre- to Late-Triassic Kluane suite mafic-ultramafic sills have intruded a northwest-trending package of volcanic and sedimentary rocks. The sills are thought to be part of a subvolcanic system that fed the Mid- to Late-Triassic mafic volcanic rocks of the overlying Nikolai formation (Israel *et al.*, 2006). The exploration program was following up on an airborne geophysical survey flown in 2004, designed to locate the source of volcanogenic massive sulphide boulders and trace mafic-ultramafic sills on the claims. Massive sulphide boulders, up to 13.6 tonnes, occur on the property in a cluster on a terminal moraine. The boulders assay an average of 6.9% Zn, 1.8% Cu, 24.0 g/t Ag, 0.2% Pb and trace Au. Mineralization associated with ultramafic sills on the property have assayed up to 4.1% Cu, 1.73% Ni, 0.46 g/t Au, 5.54 g/t Pt and 13.46 g/t Pd.

MAFIC/ULTRAMAFIC ASSOCIATED

Exploration for mafic/ultramafic-associated copper-nickel-platinum group element (PGE) deposits was concentrated within the Kluane mafic-ultramafic belt of western Yukon. The Kluane region lies within the Insular Superterrane, which is largely composed of Devonian to Triassic island arc and ocean floor volcanic rocks, with thick assemblages of overlying sedimentary rocks (Israel *et al.*, 2006). In northern British Columbia, Triassic volcanic rocks are host to the world's largest Besshi-type massive sulphide deposit (Windy Craggy, BC Minfile 114P-002, 2005). Sill-like, mafic-ultramafic bodies that are believed to represent subvolcanic magma chambers of the Triassic volcanic rocks, host numerous nickel-copper-PGE deposits in the Kluane Ranges, the most important of these being the former **Wellgreen** mine near Burwash Landing (Yukon MINFILE 115G 024).

Figure 7. *Shear zone with high-grade platinum-palladium at the Wellgreen deposit.*

Coronation Minerals optioned the **Wellgreen** mine property from Northern Platinum. The historic resource at Wellgreen is 42.3 Mt grading 0.35% Cu, 0.36% Ni, 0.51 g/t Pt, 0.34 g/t Pd. Exploration on the property consisted of geological mapping, excavator trenching and percussion drilling. Work concentrated on an east-striking shear zone conformable with the mineralized ultramafic sill in the north (JPS) zone and overlying sedimentary and volcanic rocks (Fig. 7). The shear consists of a rusty, gossanous and clay-altered zone exposed in intermittent trenches along strike for approximately 2.6 km. Chip samples across the shear zone have returned numerous assays enriched in platinum, palladium, gold and silver. The highest grade chip sample assayed 38.9 g/t Pt, 65.0 g/t Pd, 3.9 g/t Au, 39.9 g/t Ag, 0.07% Ni, 0.10% Cu over 1 m. Results from the percussion drilling were pending at year-end. In 2006, plans are to continue testing the new zone of high-grade shear-hosted mineralization and to confirm the historical resources contained in the Wellgreen deposit.

Golden Chalice Resources is earning a 75% interest in the **Burwash** copper-nickel-PGE property

(Yukon MINFILE 115G 100) from Strategic Metals. The Burwash property is located 7 km east of the Wellgreen deposit. Exploration work in 2005 consisted of mechanized trenching, road building and diamond drilling of seven holes totalling 520 m. Trenching and drilling focused on the Tom zone, which hosts net-textured and disseminated sulphide mineralization within a mafic-ultramafic sill defined by the trenching and drilling over a strike length of 200 m (Fig. 8). Geochemistry results suggest that the zone could be up to 2 km long. Drilling intersected mineralization with grades similar to that of the Wellgreen deposit (Table 2).

Table 2. *Drill intersections from the Burwash property.*

Hole number	Intersection (m)	Cu %	Ni %	Pt g/t	Pd g/t	Au g/t
05-01	31.9	0.30	0.13	0.2	0.15	0.07
including	22.43	0.57	0.25	0.55	0.30	0.15
05-02	18.9	0.21	0.10	0.16	0.09	0.07
05-03	43.58	0.34	0.15	0.25	0.13	0.09
including	12.65	0.47	0.16	0.48	0.26	0.15
05-04	4.47	0.35	0.16	0.27	0.15	0.14
05-05	2.18	0.36	0.10	0.46	0.24	0.16
05-06	5.45	0.38	0.15	0.14	0.06	0.09
and	23.86	0.27	0.12	0.14	0.05	0.07
05-07	30.9	0.25	0.11	0.20	0.11	0.07
inluding	17.99	0.35	0.16	0.34	0.19	0.10

The Burwash property hosts numerous showings which were evaluated during the 2005 exploration program. Several of the showings, such as the Lower showing, have high-grade mineralization. The Lower showing is a mineralized shear zone in talc-chlorite schist that has been exposed intermittently over a minimum strike length of 25 m and a true width of up to 1.1 m. A grab sample collected in 1987 assayed 6.25% Cu, 0.11% Ni, 18.5 g/t Pt and 13.6 g/t Pd.

Resolve Ventures optioned the **Klu** copper-nickel-PGE property (Yukon MINFILE 115G 003, 098, 099) from Inco Ltd. The Klu is located in the Kluane mafic-ultramafic belt, approximately 40 km southeast of the Wellgreen mine property. Mineralization was discovered on the Klu property in 1994 by Inco Ltd. during a reconnaissance survey of the area. A grab sample from a chalcopyrite-pyrrhotite lens, taken during the 1994 survey, graded 2.6% Ni, 10.4% Cu, 75.8 g/t Pt, 7.9 g/t Pd and 7.0 g/t Au. Subsequent exploration programs on the property have consisted of an airborne magnetic and electromagnetic survey, ground geophysical surveys, geological mapping, and soil/stream sediment geochemical surveys. No diamond drilling has been completed on the property. Resolve Ventures performed a review of the historical data, including re-interpretation of the airborne magnetic/electromagnetic survey, and then completed a field examination and ground-truthing survey of the numerous geophysical anomalies on the property in preparation for an expanded program in 2006.

Figure 8. *Geologists Bill Wengzynowski (centre), Archer Cathro & Associates, and Steve Israel (right), Yukon Geological Survey, examining nickel-copper-PGE-mineralized core from the Tom zone on the Burwash property.*

Falconbridge Ltd. entered into an agreement with StrataGold Corporation in October to option the **Canalask** nickel property (Yukon MINFILE 115F 045). The

Canalask property is located approximately 80 km northwest of the Wellgreen mine property and covers the White River mafic-ultramafic sill. Historical resources at the Canalask property are 390 235 tonnes grading 1.35% Ni. Falconbridge conducted additional claim staking in the area. The agreement with StataGold has a $500 000 work commitment to December 31, 2006.

PORPHYRY/SHEETED VEIN ASSOCIATED

Sherwood Mining Corporation acquired 100% of the **Minto** copper-gold-silver deposit (Yukon MINFILE 115I 021,022) in early 2005. In the late 1990s, a feasibility study was completed by previous owners and permits were obtained. It was at this time that construction of an open-pit mine commenced. Construction was suspended after expenditures of approximately $10 million, due to depressed copper prices. During that period, the mill foundations were poured; the ball and SAG mills were purchased and moved to the site; the mine accommodations were constructed; and the site was connected to a permitted Yukon River crossing by a 29-km production-standard access road. All of this infrastructure has been well maintained and is available for future operations (Fig. 9). The Type A and Type B Water Licences were recently renewed and permit a continuation of construction once a production decision has been made.

The deposit is an intrusion-related, magmatic-hydrothermal system that displays characteristics of both porphyry and iron-oxide-copper-gold (IOCG) systems. Mineralization consists of bornite-chalcopyrite-magnetite in gneissic zones containing abundant biotite within a Jurassic granodiorite. The company completed an independent National Instrument 43-101 compliant resource calculation which resulted in an approximate 10% increase in total copper and gold contained in the deposit (Table 3).

Table 3. *Minto resource (National Instrument 43-101 standard compliant), June 27, 2005.*

Mineral resource	**Cutoff**	**Tonnes**	**Average grade**		
Category	(Cu%)	(x1000)	Cu (%)	Au (g/t)	Ag (g/t)
Measured	0.5	3600	1.74	0.45	4.37
Indicated	0.5	4730	1.90	0.65	8.40
Additional inferred	0.5	700	1.41	0.45	6.00

Sherwood Mining Corporation commenced a 57-hole, 6772-m diamond drilling program on the Minto deposit. This program was designed with three objectives in mind: (1) to independently

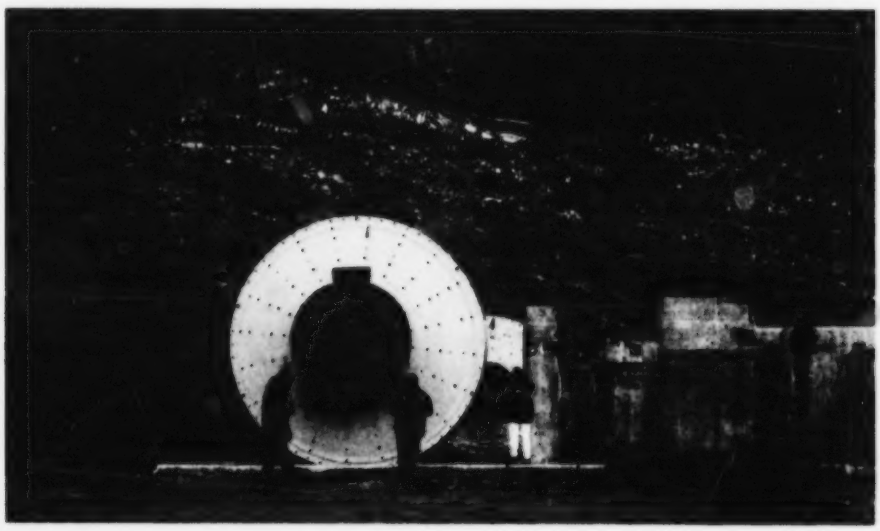


Figure 9. *Semi-autogenous grinding mill, ball mill and mill footings at the Minto mine property.*

confirm the existing resource; (2) to upgrade the approximate 8% of inferred resource within the proposed pit boundaries to the indicated category; and (3) to expand the overall resource on the margin of the existing resource. The drilling program was highly successful with step-out holes to the south and southeast of the deposit, intersecting significant mineralization. Hole 05SWC-29 intersected 14.6 m grading 2.6% Cu, 1.1 g/t Au and 9.9 g/t Ag, while hole 05SWC-30 intersected 9.6 m grading 3.9% Cu, 0.8 g/t Au and 11.1 g/t Ag. Confirmation drilling returned numerous high-grade intersections such as 14.0 m grading 10.2% Cu, 1.8 g/t Au and 42.3 g/t Ag in hole 05SWC-02, and 24.6 m grading 6.9% Cu, 1.7 g/t Au and 25.2 g/t Ag in hole 05SWC-26 (Fig. 10). Gold grades intersected in the 2005 drilling program indicate a significant increase over the historical drilling of 1973 and 1974. Considerable exploration potential exists on the property. The northern boundary of the deposit is cut-off by the Def fault and the offset portion has not been located, however, an excellent drill target indicated by a magnetic high and induced polarization anomaly remains untested. Several other untested geophysical and geochemical targets exist on the property, in addition to three areas to the south of the main deposit which have returned historical ore-grade drill intersections up to 15.8 m grading 3.2% Cu and 1.7 g/t Au.

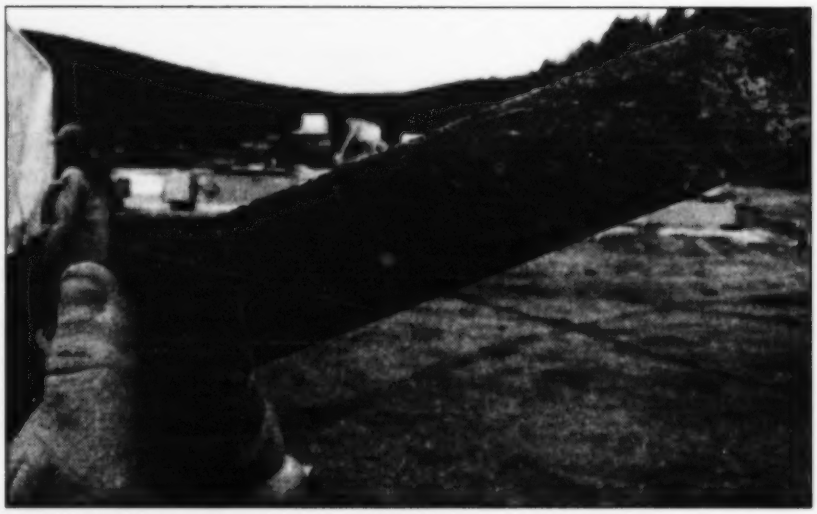


Figure 10. *High-grade core from in-fill drilling on the Minto deposit.*

The overall size and grade of the deposit is expected to increase when the results from the 2005 drilling program are incorporated into a new resource calculation. The new resource calculation, confirmatory metallurgical studies and geotechnical studies are being utilized by Hatch Associates Ltd., to update a bankable feasibility study expected in April, 2006. The project may also benefit from a potential infrastructure development initiative in Yukon that could see the Whitehorse-Aishihik hydro grid connected to the northerly Dawson-Mayo transmission line.

Kennecott Canada conducted a 6-km single-line induced-polarization (IP) survey and diamond drilling of 5 holes totalling 1035 m on the **Lucky Joe** copper-gold project (Yukon MINFILE 115O 051) optioned from Copper Ridge Exploration. Kennecott Canada has worked on the property since 2003 and has spent over $1 million on geochemistry and geological mapping programs prior to this year's drilling. The claims cover an assemblage of metasedimentary and meta-igneous rocks of the Yukon-Tanana Terrane. Kennecott Canada has proposed that the occurrence is a metamorphosed porphyry system hosted by Devonian to Mississippian meta-igneous intrusions. The single-line IP survey was conducted over the core of the Papa Bear copper-gold soil anomaly. The soil anomaly is 11 km long by 2 km wide with values up to 3060 ppm Cu and 235 ppb Au. The drill holes targeted geophysical anomalies identified in the survey. Four holes (LJ05-01, 02, 04, 05) were drilled within a 1.6 km section of the trend, and one hole (LJ05-03) was a

Table 4. *Drill results from the Lucky Joe project.*

Hole number	Intersection interval (m)	Cu %	Au ppb
LJ05-01	24.1	0.060	
	33.5	0.071	
LJ05-02	94.7	0.130	52.4
	22.7	0.217	88.5
LJ05-03	74.1	0.135	320
LJ05-05	24.4	0.057	

Table 5. *Drill results from the Kalzas tungsten property.*

Drill hole	From m	Interval m	WO_3 %
KZ05-01	11.0	48.0	0.153
includes	29.6	11.4	0.304
includes	29.6	8.4	0.393
includes	29.6	2.4	0.688
includes	36.1	1.9	1.122
KZ05-02	33.0	29.0	0.130
includes	50.0	2.1	0.391
KZ05-03	3.0	8.0	0.246
includes	28.0	2.0	0.240
	49.2	4.6	0.260
	69.6	9.8	0.211
KZ05-04	16.0	5.5	0.221
	64.9	19.8	0.145
includes	64.9	3.6	0.231
KZ05-05	0.0	24.4	0.304
includes	7.0	7.0	0.419
includes	9.0	8.4	0.533
includes	9.8	0.5	1.220
includes	16.9	0.5	1.390
	58.4	1.6	0.380
	84.0	1.0	0.720

2.1-km step-out along the trend to the northwest. The drill holes intersected disseminated pyrite-chalcopyrite mineralization in metamorphosed intrusive rocks. The strongest copper mineralization correlates with potassic (biotite) and magnetite-silica alteration with 3-5% disseminated pyrite. Overlying this zone of alteration is a shell with lower copper values and 5-10% disseminated pyrite. The highest-grade intervals were in hole LJ05-02, which intersected 22.7 m averaging 0.217% Cu and 88.5 ppb Au; and hole LJ05-03 which intersected 74.1 m grading 0.135% Cu and 0.032 g/t Au (Table 4). Kennecott opted to return the project to Copper Ridge. A large portion of the Papa Bear copper-gold soil anomaly and the Ryans Creek copper-gold geochemical anomaly remains to be tested by drilling. The Ryans Creek copper-gold geochemical anomaly is parallel to the Papa Bear and is defined by a 7.2-km-long anomaly with values up to 4400 ppm Cu and 611 ppb Au.

Copper Ridge also conducted smaller-scale programs consisting of prospecting and geological mapping on its **Thistle** and **Shamrock** copper-gold properties located a few kilometres south of the Lucky Joe property. The Thistle and Shamrock properties cover areas having similar geochemical and geophysical signatures as the Lucky Joe property.

Copper Ridge Exploration conducted a helicopter-supported diamond drilling program on their **Kalzas** tungsten property (Yukon MINFILE 105M 066). The company completed a 5-hole, 397-m drill program that tested areas of high-grade mineralization identified by surface-sampling from previous exploration programs. Wolframite occurs with minor scheelite, molybdenite, cassiterite, galena and beryl in a broad, sheeted vein and stockwork complex, approximately 1000 m by 500 m in size. This vein and stockwork complex cuts gritty, hornfelsed Yusezyu Formation quartzite and phyllite of the Upper Proterozoic Hyland Group. The drilling was successful, intersecting quartz veins with coarse wolframite and minor coarse scheelite mineralization (Table 5). The coarse-grained nature of the mineralization (Fig. 11) could have a significant

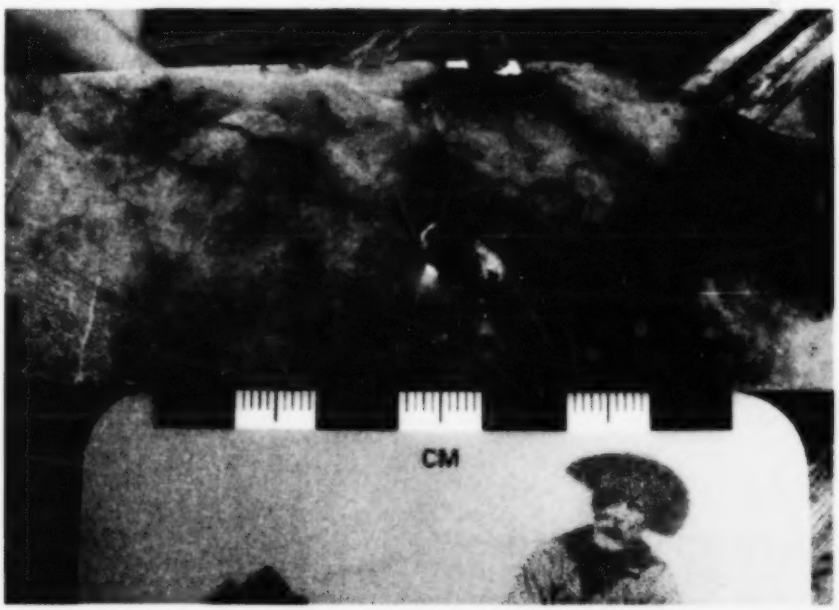


Figure 11. *Coarse wolframite in drill core from the Kalzas tungsten property.*

nugget effect on the intersections and the company is considering an expanded drill program with larger diameter drill core to test the occurrence.

Strategic Metals conducted minor exploration and environmental clean-up at their **Logtung** tungsten-molybdenum project (Yukon MINFILE 105B 039). The project is the largest intrusive-hosted tungsten deposit in the world. Historical resources calculated by Amax Potash Ltd., outlined 162 million tonnes grading 0.13% WO_3 and 0.052% MoS_2 that are minable by open-pit methods including a higher grade core of 55 million tonnes grading 0.16% WO_3 and 0.062% MoS_2 that are also minable by open-pit methods.

The **Red Mountain** (Yukon MINFILE 105C 009) molybdenum deposit of Tintina Mines Ltd. is a large porphyry deposit that was last explored by Amoco Canada in the 1960s and 1970s. Exploration at that time established a historical resource of 187.27 Mt grading 0.167% Mo including a high-grade core with 21.296 Mt grading 0.293% Mo (Fig. 12). Tintina Mines Ltd. performed engineering and environmental studies in support of its application to the Yukon government to conduct an underground exploration program proposed for 2006. This program will consist of driving a decline, underground drifting, drilling, test mining and bulk sampling.

Ordorado Resources Corp also performed a small exploration program consisting of geochemical sampling, geological mapping and prospecting on their **Rams Horn** molybdenum property (Yukon MINFILE 105D 004) in southern Yukon. The occurrence is underlain by altered volcanic and clastic sedimentary rocks assigned to the Cache Creek Terrane. An undated Cretaceous(?) biotite-quartz monzonite stock intrudes the volcanic/sedimentary sequence. Rich pockets and rosettes of molybdenite are associated with quartz veins, 0.3 cm to 5 cm wide, that form a stockwork zone about 760 m long and 150 m wide within the monzonite stock.

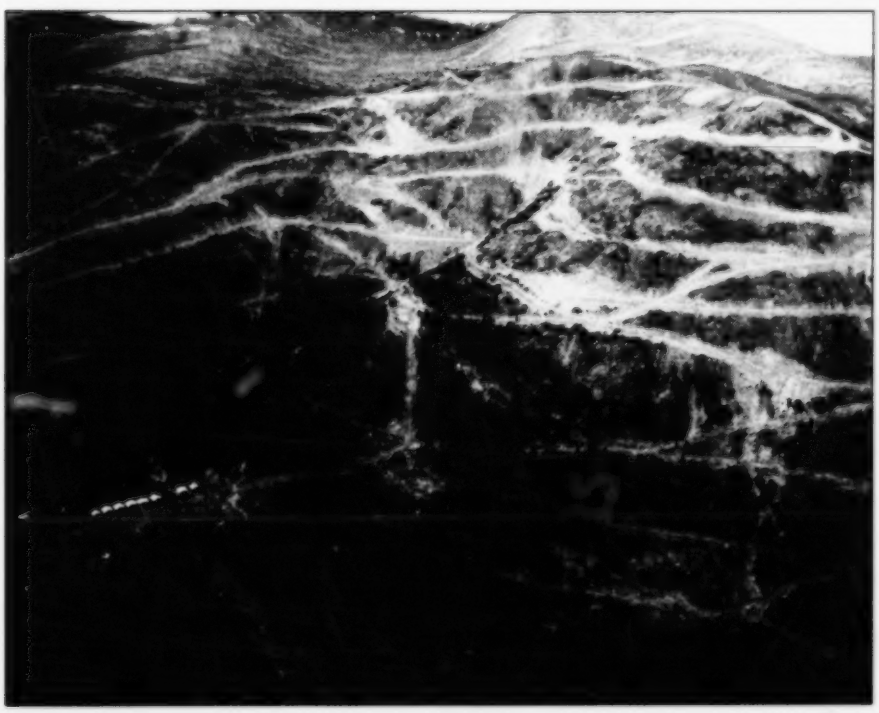


Figure 12. *Exploration camp on the Red Mountain molybdenum deposit. Work was last conducted in the 1970s.*

WERNECKE BRECCIA

At least 65 iron oxide-copper-gold ± uranium ± cobalt (IOCG) prospects are associated with a large-scale Proterozoic breccia system in north-central Yukon. The breccia system, known as Wernecke Breccia, consists of numerous individual breccia bodies that occur in areas underlain by the Early Proterozoic Wernecke Supergroup, an approximately 13-km-thick deformed and weakly metamorphosed sequence of sedimentary rocks (Hunt, 2005b). Wernecke Breccia occurrences have been explored in recent years mainly for their copper-gold content, however, in the last year, a significant amount of claim-staking has occurred based on the uranium potential of the breccia bodies. Unconformity-related uranium potential has also been recognized within Wernecke Supergroup (Hunt, 2006).

Janina Resources Ltd. conducted a 5-hole, 504-m diamond drill program on the **Yukon Olympic** copper-gold property (Yukon MINFILE 116G 082) optioned from Copper Ridge Exploration. In 2004, detailed geophysical surveys were conducted at the eastern end of the previously defined 12- km-long gravity and magnetic anomaly. The survey successfully defined a strong, roughly circular, magnetic anomaly, with a partially fringing gravity anomaly, locally in excess of two milligals. The southeastern portion of the gravity anomaly, correlates with known, copper-bearing hematite (iron oxide) breccia in Spectacular Creek, while, for the most part, the source of the combined magnetic and gravity feature is hidden under younger, overlying rocks. One drill hole was abandoned in overburden, while the other four were drilled on the fringes of the gravity anomaly in Spectacular Creek. Hematite-breccia with chalcopyrite was intersected in drilling. Drill hole YO-05-02 intersected 0.071% Cu over 9.8 m, and an additional 30 m grading 0.02% Cu. Hole YO-05-03 intersected 0.061% Cu over 6.75 m.

Copper Ridge Exploration conducted an exploration program including helicopter-supported gravity surveying, geological mapping and rock sampling on their **Ironman** (formerly Hart River) copper-gold property (Yukon MINFILE 116A 017). Previous work on the property identified several showings of copper-gold mineralization associated with hematite-rich breccias. The now fully defined gravity anomaly is 4 milligals in strength and the core of the anomaly measures approximately 1.5 km by 2 km.

Figure 13. *Jesse Kirby (student, Yukon Geological Survey) and Paul Kilkenny (International KRL Resources) at the Nor copper-uranium property.*

International KRL Resources conducted a 1155-line-km high-resolution airborne magnetometer survey, a gravity survey, a 50.5-line-km induced polarization survey, geochemical sampling, geological mapping and prospecting on the **Nor** copper-gold-uranium property (Yukon MINFILE 106L 061) in northern Yukon. Results from programs run between 1978 and 1980 by previous owners returned assay values of up to 4% U_3O_8, 4% Cu and 2.0 g/t Au in grab samples from the Nor heterolithic diatreme breccia,

which has surface dimensions of 800 m by 1800 m (Fig. 13). Initial evaluation of the exploration results has shown conductivity and resistivity anomalies coincident with copper and uranium geochemical anomalies, gravity anomalies and a zone of potassic alteration. Drill testing of several coincident anomalies is planned for 2006.

Cash Minerals Ltd optioned the **Igor, Lumina, Steel** and **Bond** copper-gold-uranium properties (Yukon MINFILE 106E 009, 106C 069, 106D 049, 065) from Twenty Seven Capital Corp. On the **Igor** property, seven diamond drill holes totalling 1121 m were drilled (Fig. 14). Drilling intersected Wernecke Breccia with chalcopyrite and pitchblende mineralization. Partial results from the 2005 drill program were available by year-end with the highlight being hole IO5-4 which intersected 74.44 m of mineralized breccia, which assayed 1.88% Cu and 0.069% U_3O_8 (1.38 lbs/ton U_3O_8; Table 6).

Table 6. *Drill intersections from the Igor property.*

Hole no.	From m	To m	Interval m	U_3O_8 %	U_3O_8 lb/ton	Cu %
IO5-1	10.74	33.04	22.28	0.005	0.10	0.32
	88.08	99.10	11.02	0.006	0.12	0.38
	115.51	124.97	9.46	n.r.	n.r.	0.26
IO5-2	8.95	13.36	4.41	n.r.	n.r.	0.35
	17.68	19.22	1.54	n.r.	n.r.	0.42
	29.00	30.35	1.35	n.r.	n.r.	0.33
IO5-4	103.87	178.31	74.44	0.069	1.38	1.88
includes	111.87	24.30	12.43	0.192	3.84	4.79
includes	160.27	174.81	14.54	0.215	4.30	4.79
includes	160.27	164.59	4.32	0.400	8.00	6.62

n.r. = none reported

On the **Lumina** property, the company conducted geological mapping, sampling and radiometric prospecting. Previous operators on the property in the 1980s had identified uranium-bearing float samples in sedimentary rocks, which were assumed to originate from a glacial ice-covered cirque. The company reported that most of the mineralization consists of sooty to compact pitchblende-filling fractures and vein breccias. Brannerite is also present in a few areas and yellow secondary uranium minerals coat some weathered surfaces. Although the uranium mineralization is structurally controlled, it is relatively young in age (~510 Ma); and proximity to the discordant younger rocks lying above a regional unconformity to the immediate north and east of the showing suggests it is probably unconformably related. Glacial melting has exposed an inaccessible showing (Jack Flash) high on the cirque wall, consisting of fracture filling and veins in sedimentary rocks. A total of 31 float boulders derived from the Jack Flash showing were collected over a 1.4-km-long talus train. The average value assayed from the boulders was 1.22% U_3O_8 (24.4 lbs/ton U_3O_8). The Ram showing, located 4.5 km north of the Jack Flash showing, consists of a pitchblende-bearing vein exposed in a creek valley.

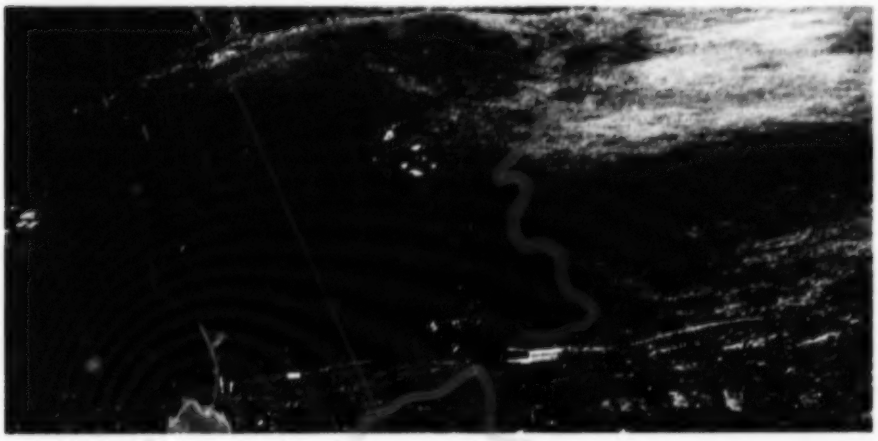


Figure 14. *Helicopter-supported diamond drill on the Igor copper-uranium property.*

Sampling by previous operators has returned values up to 0.91% U_3O_8 (18.2 lbs/ton U_3O_8). A late-season (November) drill program was conducted near the Ram showing; seven holes totalling 504 m were drilled. The drill, as well as the all-season camp, remain on the property, ready for an early start to the 2006 field season. Drill results were not available at year-end.

On the **Steel** property, three holes totalling 581 m were drilled on a broad magnetic and gravity anomaly in an overburden-covered valley. None of the holes explained the source of the anomalies, nor did they intersect any significant copper or uranium mineralization. Drilling of seven holes totalling 735 m on the **Bond** property intersected weak uranium mineralization. The companies conducted additional claim staking in the vicinity of the Lumina and Igor properties and optioned the **Delores** property (Yukon MINFILE 106C 013) that adjoins the Lumina property to the south.

Signet Minerals conducted an exploration program of prospecting and radiometric sampling on the **Curie** uranium-copper-gold property (Yukon MINFILE 106E 3, 6, 11, 22, 27-31). Based on the positive results of the exploration program, the company staked additional claims in the area. The claims cover a number of MINFILE occurrences. These occurrences exist as uranium and copper mineralization in an area underlain by Wernecke Breccia cutting Middle Proterozoic Quartet Group. Mineralization is associated with breccias and structural zones within Quartet Group sedimentary rocks . The company obtained significant uranium assays collected from float and grab samples of sheared and hydrothermally altered, quartz-feldspar-chlorite-veined, fine-grained sedimentary rocks (Fig. 15). Samples ranged from 0.07% to 52.3% U_3O_8. The company is also assessing the potential of unconformity-related uranium on the property.

Figure 15. *High-grade uranium in sheared and hydrothermally altered, quartz-feldspar-chlorite-veined, fine-grained sedimentary rocks at the Curie property. Photo by Aurora Geosciences.*

Figure 16. *Fine-grained sphalerite, pyrite and galena occur in rhythmically laminated carbonaceous chert and calcareous mudstone at the Howard's Pass deposits.*

SEDIMENTARY ROCK ASSOCIATED

Selwyn Basin is a continental margin basin characterized by the deposition of thick sequences of black carbonaceous shales in euxinic conditions, and by the development of second-order basins through periodic extensional tectonism, subsidence and faulting. Over 800 mineral occurrences have been discovered within the outline of Selwyn Basin; 19 of these have been identified as sedimentary-exhalative (SEDEX) deposits. An additional 89 occurrences have been described as SEDEX-type mineralization. Of the three main SEDEX districts (Anvil, MacMillan Pass and Howard's Pass), only those of the Anvil district have been mined, although all three still have potential for significant new discoveries.[3] With the rising price of zinc, interest in the deposits and exploration potential of the Selwyn Basin has been expected to rise. Interest to date has been minimal with the exception of the large exploration program in the Howard's Pass district by Pacifica Resources.

In July 2005, Pacifica Resources Ltd. completed an option to purchase agreement with Placer Dome Inc. and Cygnus Mines Ltd. (a subsidiary of US Steel) to acquire the **Howard's Pass** zinc-lead-silver deposits (Yukon MINFILE 105I 012, 037) in order to consolidate their current claim holdings in the district. The Howard's Pass deposits (XY, Anniv and OP) are sheet-like, stratiform sulphide deposits hosted by black shale of the Ordovician-Silurian Road River Formation within the Selwyn Basin. Fine-grained sphalerite, pyrite and galena occur in rhythmically laminated carbonaceous chert and calcareous mudstone (the 'active member') (Fig. 16). Historical resources that pre-date National Instrument 43-101 standard include an indicated reserve of 60 million tonnes grading 5.51% Zn and 2.38% Pb in the XY zone, and 55.5 million tonnes grading 5.29% Zn and 1.79% Pb in the Anniv zone. The tabulation of reserves and resources also included 367 million tonnes of inferred resources grading 5.12% Zn and 1.90% Pb within the Anniv and XY zones.

[3] *www.geology.gov.yk.ca/metallogeny*

Figure 17. *Howard's Pass exploration camp.*

Pacifica Resources Ltd. completed an extensive exploration program consisting of camp construction (Fig. 17), geochemical sampling, geological mapping, metallurgical testing and diamond drilling of 8317 m in 53 holes. The focus of Pacifica's exploration program was to 1) drill-test areas of favourable stratigraphy with potential for near-surface mineralization in the area of the known deposits; 2) drill-test areas with geological and geochemical potential on Pacifica's wholly owned claims; and 3) infill drill in the area of the known deposits. The strike lengthof the known favourable stratigraphy in the district, which is approximately 40-50 km, highlights the immense scope and potential of this program. The XY and Anniv deposits are separated by 22.5 km.

Table 7. *Drill results from the Brodel zone.*

Hole	From m	To m	Interval m	True thickness m	Pb %	Zn %
BR-01	Hole abandoned in hanging-wall stratigraphy					
BR-02	169.50	194.10	24.60	18.00	0.99	3.18
includes	169.80	186.30	16.50	12.07	1.19	4.20
includes	169.80	182.40	12.60	9.22	1.36	4.90
BR-03	94.00	141.10	47.10	40.00	0.58	2.13
includes	94.00	103.50	9.50	8.07	1.35	4.62
includes	129.80	141.10	11.30	9.60	1.04	4.09
BR-04	Hole abandoned in hanging-wall stratigraphy					
BR-05	49.12	68.30	19.18	17.50	1.28	4.03
includes	49.58	59.77	10.19	9.30	1.40	5.66
includes	55.40	60.80	5.40	4.93	2.14	7.95
BR-06	167.30	177.71	10.41	10.25	1.17	3.75
includes	168.94	175.00	6.06	5.97	1.58	5.57
BR-07	215.42	235.56	20.14	19.38	1.06	3.31
BR-08	137.01	144.90	7.89	7.4	0.79	2.94
BR-09	87.16	105.51	18.35	16.63	1.02	3.04
includes	87.16	100.12	12.96	11.75	1.10	3.96
BR-10	121.95	147.57	25.62	22.19	0.76	3.10
includes	121.95	137.20	15.25	13.21	0.90	4.10
includes	115.2	121.42	6.22	5.76	1.95	7.17

Highlights from drilling include the discovery of two new areas of mineralization, the Brodel zone and the Don Valley. The Brodel zone is located 4 km northwest of the XY deposit and was tested with 10 drill holes, 8 of those intersecting significant mineralization (Table 7).

Drilling in the Don Valley resulted in a new discovery. The drilling tested an area with favourable stratigraphy and geochemical anomalies. The Don Valley stretches 11 km between the Brodel discovery and the Anniv deposit. Eight widely spaced stratigraphic drill holes were collared in the Don Valley with seven holes abandoned in hanging-wall stratigraphy or stratigraphy representing the footwall to the 'active member'. Hole Don-04 was successful in intersecting the mineralized 'active member' and returned 34.1 m grading 0.99% Pb, 3.64% Zn, including 7.81 m of 1.80% Pb, 7.93% Zn and 7.13 m of 1.74% Pb and 4.71% Zn. The drilling has led to a better understanding of the structure that offset stratigraphy in the Don Valley, while the intersection in hole 4 has demonstrated that the 'active member' in the area is mineralized.

Drilling in the area of the XY, Anniv and OP deposits resulted in numerous intersections with grades similar to that indicated by the historical drill results.

Figure 18. *High-grade zinc-lead mineralization in drill core from the XY deposit at Howard's Pass.*

Highlights include XY-105 intersecting 16.25 m of 3.17% Pb and 7.47% Zn, including 5.62 m grading 6.97% Pb and 17.23% Zn (Fig. 18); Anniv-76 which intersected 31.0 m grading 1.49% Pb and 4.37% Zn, including 21.51 m grading 1.89% Pb and 5.16% Zn; and OP-11 intersecting 14.0 m of 0.97% Pb and 2.84% Zn, including 8.18 m grading 1.51% Pb and 4.24% Zn. The OP is located 7 km northwest of the Anniv deposit. Complete drill results are available at Pacifica Resources website[4].

In addition to the on-site work, Pacifica Resources Ltd. initiated preliminary metallurgical testing consisting of Dense Media Separation (DMS) gravity testwork at SGS Lakefield Research. The initial work used a grab sample from the mine dump of the XY deposit. The combined zinc + lead head grade of this sample was 21.8% which was upgraded to 29.0%, with lead and zinc recoveries at 98% and 97%, respectively. A larger sample collected from the mine dump, and compiled from drill core, has been submitted to SGS Lakefield for further testing. The positive, preliminary testwork results illustrate the potential for pre-concentration of mineralization from a wide range of run-of-mine (ROM) grades in the Howard's Pass deposits. The nature of the mineralization lends itself to DMS technology because there are high-density bands of zinc-lead mineralization with very little pyrite, separated by barren shale beds of lower density.

Manson Creek Resources conducted a small geological program on their **Tanner** lead-zinc property (Yukon MINFILE 106C 098), located in the northeast portion of the Selwyn Basin, near its boundary with the Mackenzie Platform. Reconnaissance-scale drilling of two holes by Manson Creek Resources in 2002 intersected bedded barite. The bedded barite exceeded 20 m (down hole) in length and returned an average assay of 26.9% BaO. The presence of barite suggests the area is potentially underlain by Devonian to Mississippian Earn Group stratigraphy which is host to the MacMillan Pass SEDEX deposits and the Marg volcanogenic massive sulphide deposit.

[4]www.pacificaresources.com

Figure 19. *Drill core storage area at the Blende lead-zinc-silver deposit.*

VEIN/BRECCIA ASSOCIATED

Blind Creek Resources optioned the **Blende** lead-zinc-silver deposit (Yukon MINFILE 106D 064) from Eagle Plains Resources and conducted an exploration program of re-logging historical diamond drill core (Fig. 19), geological mapping, geochemical sampling and prospecting. The Blende property, located on the south edge of the Mackenzie Platform is hosted by Middle Proterozoic Gillespie Group dolomite and contains an inferred resource of 15.3 Mt grading 3.23% Pb, 3.04% Zn and 67.5 g/t Ag. Examination of the drill core, and reviews of previous work, concluded that "epigenetic mineralization consisting of sphalerite, galena, smithsonite and minor chalcopyrite is spatially associated with a middle-Proterozoic structural zone. The highest grade mineralization is associated with veining and breccia zones with grades typically running 8-20% Pb+Zn over 1-2 m" (B. Sharp, 2005[5]). The companies have announced plans for a 7000-m drill program in 2006 to infill existing drilling, evaluate underground high-grade mining potential, and test other targets along the 6-km mineralized trend.

Figure 20. *Regan Chernish (centre of photo), President, Manson Creek Resources sampling at the Cuprum copper-zinc-silver property.*

[5]*Blende Property Update – Presentation at the 33rd Annual Geoscience Forum, November, 2005.*

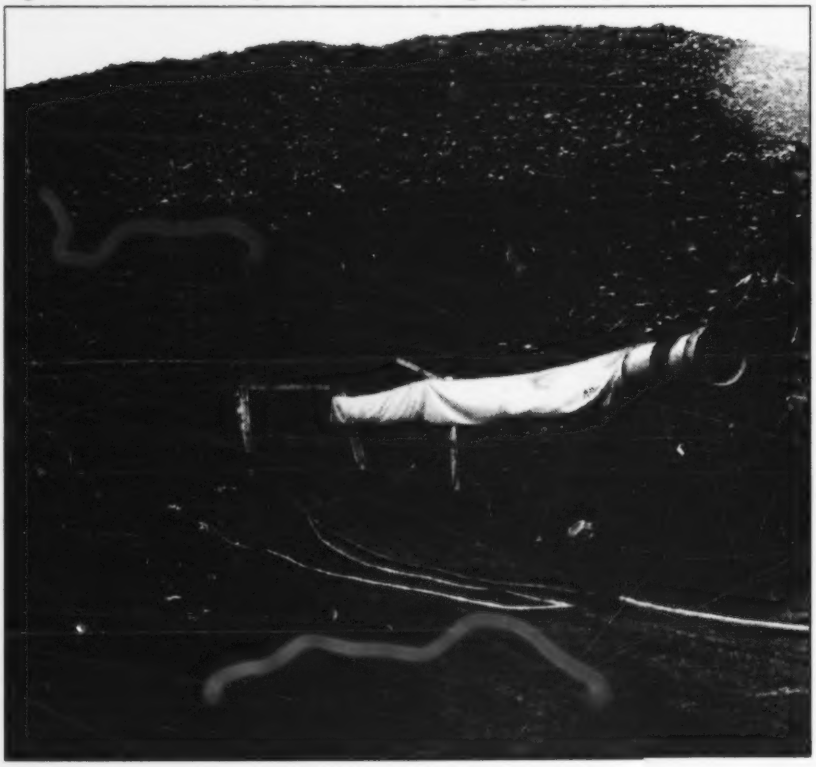
SKARN

Manson Creek Resources explored the **Cuprum** copper-zinc-silver property (Yukon MINFILE 105E 008), located near Whitehorse. They conducted an exploration program consisting of geochemical sampling (Fig. 20), prospecting, geological mapping and ground magnetometer surveys. Copper-zinc mineralization is associated with magnetite and calc-silicate skarn. Grab samples from the magnetite skarn have returned values of up to 7.5% Cu, 2.2% Zn and 123 g/t Ag.

Strategic Metals Ltd. explored the **Tidd** copper-lead-zinc-silver property (Yukon MINFILE 105J 029) and completed a program of prospecting, geochemical surveys, geological mapping and geophysical surveys (magnetic, horizontal-loop electromagnetic, gravity and induced polarization). Chip sampling in areas of trenching by previous operators yielded values of up to 1.08% Cu, 68.5 g/t Ag, 46 g/t In and 0.02% Bi over 10.5 m. Float samples have returned values up to 6.85% Cu, 411 g/t Ag, 157 g/t In, 0.34% Bi, 3.61% Pb and 2.39% Zn.

North American Tungsten Corporation explored their **MacTung** deposit (Yukon MINFILE 106D 064) with a 25-hole, 6668-m diamond drill program. The company also rehabilitated the mine portal (Fig. 21), conducted underground channel sampling, and collected a 100-tonne bulk sample for processing. Historical resources are reported as 5.02 Mt at 1.2% WO_3 in the Lower skarn and 8.62 Mt at 0.8% WO_3 in the Upper skarn. Tungsten mineralization consists of scheelite in pyrrhotite skarn within Lower Cambrian sedimentary rocks. The drilling was conducted to upgrade resources within the deposit and to expand the deposit to the west. Drilling intersected grades consistent with the previous drilling, with the highest grade intersection in MS146 assaying 1.60% WO_3 over 32.2 m. The resource was expanded 60 m to the west. A new resource calculation is being conducted utilizing the results of this year's program.

Figure 21. *Rehabilitated portal at the MacTung tungsten deposit.*



E-Energy Ventures Inc. conducted an initial prospecting program on the **Stormy Mountain** molybdenum project (Yukon MINFILE 105F 011). Molybdenite occurs with lesser amounts of scheelite in a garnet-diopside-pyrrhotite skarn zone. The deposit formed in Lower Cambrian limestone, in a shallow-dipping contact aureole above the Rose Lake Stock. Prospecting in a new area on the property located three samples of molybdenum-bearing float, which assayed 10.4%, 8.63% and 3.16% Mo.

PRECIOUS METALS

PORPHYRY/SHEETED VEIN

The **Dublin Gulch** project (Yukon MINFILE 106D 025) of StrataGold Corporation was the largest gold exploration project in Yukon this year. The program consisted of 34 holes totalling 8102 m, and was designed to upgrade resources within the Eagle Zone (Fig. 22), expand the resources to the west, and test areas with sulphide-mineral veins and alteration in metasedimentary rocks for higher grade mineralization. The Dublin Gulch property hosts indicated resources in the Eagle Zone of 55.228 Mt grading 0.934 g/t Au and an additional 17.255 Mt grading 0.723 g/t Au in the inferred category. Mineralization in the Eagle Zone consists of gold in sheeted quartz veins, shears and fractures within the granodiorite intrusion. This style of mineralization appears to be the exact same style of mineralization found at the producing Fort Knox mine in Alaska. Results from this year's drilling program will be used to upgrade and expand the resource estimate in the Eagle Zone. The first four holes were successful in expanding the deposit 150 m to the west of the current resource area (Table 8). The remaining holes, including individual results, were scheduled for release by year-end with the upgraded resource estimate.

Table 8. *Drill results from the Eagle Zone of the Dublin Gulch gold property.*

Hole DG05	Length m	From m	To m	Interval m	Au g/t
276C	258.00	60.96	258.00	197.04	0.983
includes		119.59	256.03	136.44	1.133
includes		196.06	212.14	16.08	2.021
277C	198.12	19.81	175.26	155.45	0.608
includes		134.81	175.26	40.45	0.949
279C	201.17	15.24	201.17	185.93	0.697
includes		16.76	64.01	47.25	0.923
includes		80.77	110.29	29.52	0.957
includes		160.57	201.17	40.60	0.923
281C	222.50	35.06	185.24	150.18	0.561
includes		56.19	75.56	19.37	0.858
includes		105.80	149.35	43.55	0.927

A number of targets on the **Mike Lake** gold property (Yukon MINFILE 116A 012) of Bashaw Capital Corporation were drill-tested for the very first time. Exploration on the property consisted of camp construction, geological mapping, prospecting, geophysical surveys and diamond drilling of

Figure 22. *View of the Dublin Gulch camp and placer workings. The Eagle Zone (arrow) is visible in the background. Photo by StrataGold Corporation.*

18 holes totalling 2200 m. The property hosts a number of intrusion-related gold targets which are as follows: vein- and fracture-related gold-copper mineralization within the Cretaceous-aged syenite intrusive rocks (Spartan vein); shear zones within Paleozoic sedimentary rocks (Birdie-Bindie); and skarn- and replacement-style mineralization proximal to the intrusive rocks (Skarn and North zone). The best results from the drilling program came from the North zone (Fig. 23), where 12 holes were drilled. The drilling tested a 1000-m conductor identified in a max-min electromagnetic survey. Approximately 500 m of the conductor were tested, with the best results revealed from a 150-m section of the conductor. Drilling intersected a 3- to 15-m-wide skarn horizon with pyrrhotite, arsenopyrite and chalcopyrite mineralization (Table 9).

Table 9. *Drill results from the North zone of the Mike Lake property.*

Hole number	From m	To m	Interval m	Au g/t
NV05-1*	1.40	3.66	2.26	0.50
and	7.80	9.10	1.30	1.15
NV05-2	42.37	60.80	18.43	7.67
includes	57.61	60.80	3.19	38.60
NV05-3	71.32	72.49	1.17	1.49
NV05-5	59.73	61.87	2.14	0.71
NV05-7*	106.74	107.75	1.01	0.67
NV05-12	75.74	83.32	7.58	12.42

*only crossed a portion of the mineralized zone

The only hole drilled at the Spartan vein, tested about 70 m down-dip from a strong, well mineralized surface exposure, resulted in 43.7 g/t gold across 0.91 m. The vein narrowed in the hole to only 15 cm; however, the interval that included the vein material still assayed 5.80 g/t gold across 1.00 m. Previous drilling at the Spartan vein yielded intersections of 4.39 g/t Au over 1.40 m and 21.51 g/t Au over 1.28 m. Follow-up drilling based on results obtained in 2005, plus drilling on five other untested targets, will commence in 2006.

Acero-Martin Exploration Inc. continued to drill the Jethro zone at its **Ice** property (Yukon MINFILE 115P 006). The Jethro zone is a northeasterly striking structural zone in which gold mineralization is hosted by sheeted quartz-sulphide mineral veins, fractures and shear zones within the Cretaceous, Red Mountain quartz-

Figure 23. *Diamond drill on the North zone at the Mike Lake project. Photo by Bashaw Capital Corporation.*

Table 10. *Drill results from the Ice property.*

Drill hole	From m	To m	Interval m	Au g/t
DD-05-20	122.47	227.38	104.91	1.07
includes	122.47	148.90	26.43	0.81
includes	148.90	186.23	37.33	1.47
includes	186.23	227.38	41.15	0.88
	227.38	304.00	76.62	0.67
DD-05-21	42.83	106.40	63.57	1.13
includes	42.83	74.15	31.32	0.64
includes	74.15	106.40	32.25	1.60
	161.10	183.18	22.08	0.62
DD-05-22	4.27	32.48	28.21	1.24
	32.48	60.65	28.17	0.53
	60.65	75.36	14.71	0.70
	75.36	94.60	19.24	0.54
	119.30	135.30	16.00	0.55
DD-05-23	118.00	132.16	14.16	0.94
DD-05-24	6.66	19.77	13.11	0.74
	60.86	79.74	18.88	1.07
	148.50	165.80	17.30	0.56
DD-05-25	107.46	113.34	5.88	1.15
	124.28	145.28	21.00	0.68

monzonite intrusion and adjacent hornfelsed sedimentary rocks. Eight holes were drilled, with six intersecting significant mineralization (Fig. 24, Table 10).

Curlew Lake Resources Inc., together with partner Select Resources Corp., performed a program of soil geochemical sampling and magnetometer surveys on the **Typhoon** gold property located in the Clear Creek area (Yukon MINFILE 115P 060). Results from soil geochemistry defined an anomalous gold, arsenic, antimony and bismuth signature consistent with intrusive gold-related systems.

Firestone Ventures Inc. conducted an exploration program of geophysics consisting of induced polarization, magnetometer and very low frequency (VLF) surveys on the **Sonora Gulch** gold property (Yukon MINFILE 115J 008). The property is located within the Dawson Range Gold Belt and is host to high-grade, gold-tetradymite veins in structural zones, and copper-gold mineralization in stockwork and disseminated mineralization within a quartz-feldspar porphyritic intrusion. The geophysical surveys are designed to identify targets for a proposed diamond drill program, which is scheduled to begin in 2006.

SKARN/REPLACEMENT

YGC Resources initiated a large year-round exploration program on the **Ketza River** gold property (Yukon MINFILE 105F 019) in May of 2005. As of the end of November, 95 holes totalling 12 285 m had been drilled on the property. Mineralization at Ketza consists of massive, pyrrhotite-pyrite manto deposits (Fig. 25) hosted in Lower Cambrian limestones, as well as quartz-pyrrhotite-pyrite veins (Fig. 26) hosted in Lower Cambrian argillites which stratigraphically underlie the limestone unit. Oxidized mantos mined at the Ketza River deposit between 1988 and 2000 produced approximately 3.1 million grams of gold.

YGC Resources Ltd. is concentrating on increasing the sulphide mineral resources on the property that have not been mined. The company has completed an upgrade of the camp, as well as road maintenance to make the camp and mine site suitable for year-round operation. The company has also performed a large amount of environmental clean-up and reclamation work at the site. YGC Resources Ltd. has signed a memorandum of understanding (MOU) with Ross River Dena Council for its participation in the exploration activities, as well as continuing environmental monitoring and

Figure 24. *Diamond drill on the Jethro zone at the Ice property.*

remediation. The Kaska First Nation is provided with opportunities for employment, training and service contracts related to the activities performed at the Ketza River property.

Exploration at the property has targeted both the Manto zone hosted in the limestones, as well as the quartz-sulphide mineral veins of the Shamrock zone, hosted in argillites. Drilling on the Manto zone has expanded the deposit to the west. Based on 37 holes from the summer drilling program, the Manto resource in the measured and indicated mineral resource category has been upgraded from 4.25 Mt grading 2.82 g/t Au (10.9 million g Au) to 5.95 Mt grading 3.0 g/t Au (16.3 million g Au) at a 1 g/t Au cut-off. In addition, the inferred mineral resource of 6.27 Mt grading 1.76 g/t Au (10 million g Au) have been increased to 10.55 Mt grading 2.37 g/t Au (22.8 million g Au) at a 1 g/t Au cut-off. Numerous intersections

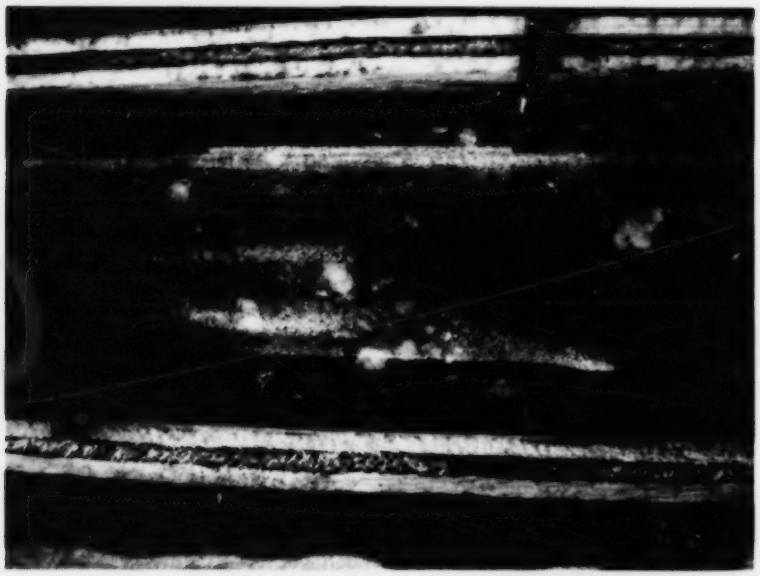


Figure 25. *Massive pyrrhotite-pyrite manto-style mineralization from Ketza River.*

Figure 26. *Quartz-pyrite vein mineralization from the Shamrock zone at Ketza River.*

of the flat-lying manto were in the 0.5 m to 3.0 m range, with a higher grade example assaying 18.91 g/t Au over 3.1 m in hole 601. Complete assays of drill results received to date are available on the YGC Resources Ltd. website[6], as well as in press releases. A new resource calculation will be determined with receipt of assays from additional intersections of the Manto zone in the fall and winter drill programs. Results from drilling on the Shamrock zone were pending at year-end.

Eagle Plains Resources conducted an exploration program of geophysics (magnetometer survey) and blast trenching on the **Dragon Lake** gold property (Yukon MINFILE 105J 007). Pyrrhotite-rich calc-silicate skarn is developed proximal to a small Cretaceous quartz-monzonite stock. The property was last explored in 1999. At that time, four holes were drilled, which intersected up to 3.66 g/t Au over 1.2 m.

VEIN/BRECCIA ASSOCIATED

Orogenic gold mineralization in Yukon is mostly associated with the polydeformed, greenschist-grade, pericratonic, meta-sedimentary and meta-igneous rocks of the Yukon-Tanana Terrane. The orogenic lode sources occur as low-sulphide quartz veins in fissures and shears that post-date metamorphism. The oldest veins are ~170-145 Ma, having formed after Early Jurassic (~185 Ma) terrane accretion and metamorphism. The youngest veins occur in more outboard (coastal) locations and are likely ~55 Ma, having formed in response to metamorphism and uplift associated with emplacement of coastal batholiths (Coast Plutonic Complex).

Orogenic gold has not traditionally been a focus of exploration in Yukon, despite approximately 20 million ounces (600 million g) of placer gold having been recovered from the historic Klondike placer district, and associated goldfields. An orogenic source is suspected for the Klondike placer district, but significant lode sources have not yet been discovered. Recent exploration activity, however, has focused on orogenic gold lode targets in the Klondike, and in other areas underlain by Yukon-Tanana Terrane that also yield significant placer gold (e.g., the Stewart River area). Much of this region was not glaciated during the Quaternary glaciations. As a result, bedrock exposure is poor with thick colluvial cover, which in turn inhibits effective exploration (Burke *et al.*, 2005).

The **Lone Star** deposit (Yukon MINFILE 115O 072) is currently being explored by Klondike Star Mineral Corporation. The property, located at the headwaters of Bonanza Creek in the heart of the Klondike, is one of the few, small historical lode producers in the district, with a reported production from the early 1900s of 7650 tonnes grading 5.1 g/t Au. Ore was produced from discordant quartz and quartz-pyrite veins. Gold grades are erratically distributed in the nuggety veins; consequently, new exploration efforts at Lone Star include bulk sampling. Controls on vein location and gold enrichments in the Klondike are poorly understood, but are pivotal for successful exploration of orogenic vein gold mineralization in this region. Klondike Star's exploration program included trenching, bulk sampling and a diamond drilling program that consisted of 32 holes totalling 4830 m on the Lone Star property (Fig. 27). Twenty Seven of the holes tested the Lone Star deposit (4268 m), while the remaining five were directed at the Dysle and Veronika zones (Fig. 28). Drilling at the Lone Star intersected gold mineralization over an 800-m strike length on drill sections spaced at 50 m. Gold is present as coarse, free

[6]www.ygcr.ca

Figure 27. *Diamond drill on the Lone Star property.*

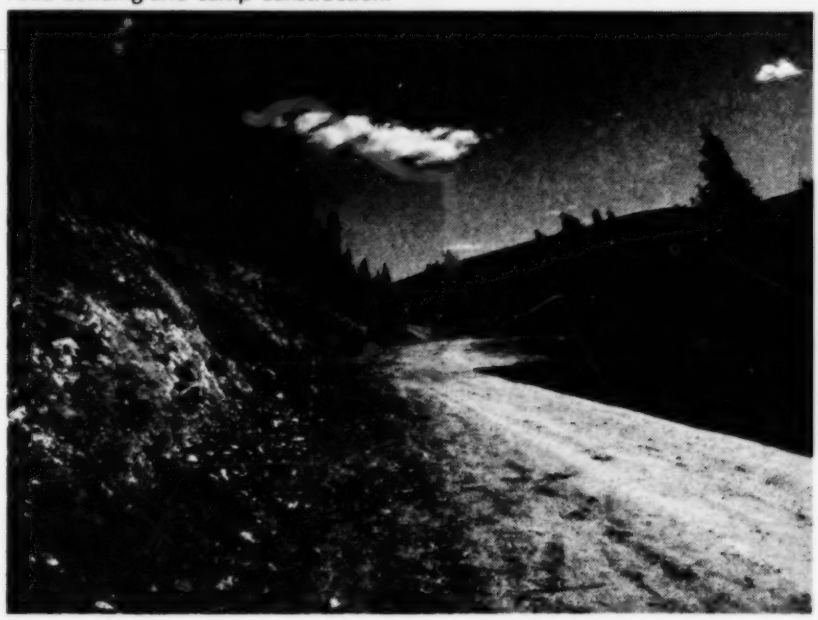
Table 11. *Drill results for Lone Star property.*

Hole	Intersection m	Au g/t
05LS-02	62.55	1.14
includes	6.0	5.46
05LS-12	44.0	0.84
includes	8.4	2.74
05LS-15.	24.0	2.10
includes	1.0	13.43

gold, with disseminated pyrite, and locally is associated with narrow discordant quartz veins. The mineralized zones are associated with quartz-carbonate-pyrite alteration and are hosted by felsic metavolcanic schist. The mineralized horizon at Lone Star trends northwest and dips gently to the northeast. Results for 15 of the holes drilled at Lone Star were released by year-end with all holes intersecting gold mineralization (Table 11).

New World Resource Corp. conducted a percussion drilling program totalling 1800 m in 43 holes on their **McFaull** property (Yukon MINFILE 116B 157) located in the Klondike. The percussion drilling was conducted in a systematic grid pattern to better define the known listwaenite alteration zone located in the bedrock of the Paradise Hill placer gold mine workings, and to explore for gold-bearing veins proximal to this zone. Anomalous gold values were intersected at the contact of ultramafic rocks and underlying schists. Partial results from drilling included an intersection of 0.63 g/t Au over 12.2 m in hole PPH-46.

Figure 28. *The Veronika zone on the Lone Star property was discovered during road building and camp construction.*



Ryanwood Exploration Inc. conducted an exploration program of soil sampling, ground magnetometer surveying and geological mapping on the **Crown Jewel** property in the

Klondike (Yukon MINFILE 115O 088). The exploration program targeted low-sulphide, gold-bearing orogenic veins.

Other exploration programs in the Klondike included trenching, prospecting and sampling on the **King Solomon's Dome** property of J.A.E. Resources (Yukon MINFILE 115O 068). The property covers an area containing the gold-bearing Mitchell and Sheba veins. Trenching concentrated on new areas of the property that have favourable geochemistry. This trenching was successful in discovering new areas of gold mineralization.

Approximately 80 km south of the Klondike district, active placer mining in the White River-Thistle Creek area has been targeted for orogenic gold potential, as it is an area underlain by prospective Yukon-Tanana Terrane rocks.

Madelena Ventures Inc. expanded the grid soil sampling and magnetometer surveys on the **White River** property (Yukon MINFILE 115O 012). Exploration in 2004 discovered two parallel gold-bearing quartz veins with trace galena, chalcopyrite and visible gold. The veins vary from 1 to 5 m in width and are each exposed over a 12-m length. The veins dip steeply, and are hosted in Devonian to Mississippian quartz-sericite schist with a shallow foliation, which is in turn intruded by a large, mid(?) to late Paleozoic gabbroic body.

In the Thistle Creek area, Ryanwood Exploration conducted soil sampling, magnetometer surveys (Fig. 29) and excavator trenching on their **Blackfox** property (Yukon MINFILE 115O 014). Trenching exposed a low-sulphide, gold-bearing quartz vein, which had returned float samples found prior to trenching that assayed up to 26.0 g/t Au (Fig. 30).

Gold mineralization occurs in a northerly trending linear belt in the Hyland River area of southeastern Yukon. Recent work in the area by Craig Hart of the Yukon

Figure 29. *Mike Lindley with Ryanwood Exploration conducting magnetometer surveying on the Blackfox property.*

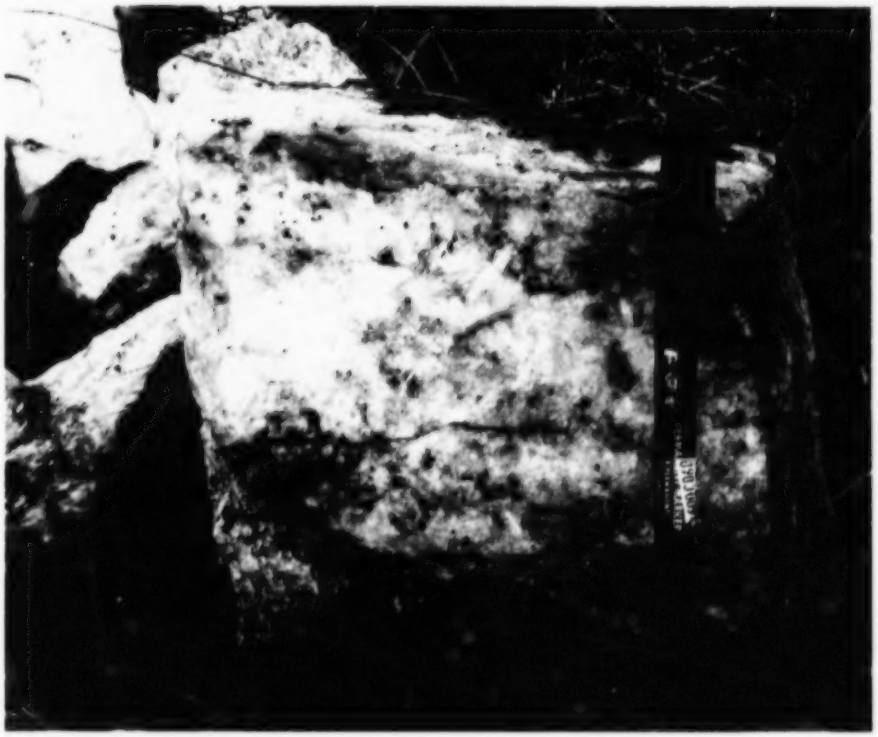


Figure 30. *Gold-bearing quartz vein from the Blackfox property.*

Geological Survey has suggested an orogenic model for the numerous gold occurrences that occupy this trend (Hart and Lewis, 2006).

StrataGold Corporation and joint venture partner Northgate Exploration Ltd. conducted a 4-hole, 985-m, helicopter-supported diamond drill program on the **Hyland Gold** property (Yukon MINFILE 095D 011). Previous workers have suggested an intrusive-related source for the mineralization at the Hyland Gold property; however, recent work by Hart and Lewis (2006) includes the Hyland Gold property in a newly outlined belt of orogenic gold occurrences. The claims are underlain by the Neoproterozoic to Lower Cambrian Hyland Group phyllite and quartzite. In the main area of exploration on the property, these Hyland Group rocks are characterized structurally as having formed an east-verging, overturned anticline. There is intense silica and sulphide mineral replacement of the phyllite and quartzite in the core of the anticline. No results were reported from this year's drilling.

The **Hy** property of Dentonia Resources Ltd. is located to the north of the Nahanni Range road, which provides access to the Cantung mine (Yukon MINFILE 105H 102). The property is underlain by Neoproterozoic to Lower Cambrian carbonate and clastic metasedimentary rocks assigned to the Hyland Group. Dentonia drilled three short holes on the property, targeting two areas identified by soil geochemistry and gold-bearing, low-sulphide quartz in float. The West gold zone, which trends north-northwest, is 1.4 km in length, with a width of 50 to 100 m, and contains quartz veins with values in grab samples ranging up to 144 g/t Au. Soil geochemical values range up to 909 ppb Au and 253 ppm As. The East gold zone is located 800 m east of the West gold zone, and also trends north-northwest. It is 900 m long and up to 350 m wide. Values in grab samples range up

Figure 31. *Helicopter-supported drilling on the Hy property.*

to 37.6 g/t Au. Soil geochemical values range up to 1259 ppb Au and 1783 ppm As. No significant results were reported from the drilling (Fig. 31).

North American Tungsten Corporation explored the **3 Aces** property which is located adjacent to the Nahanni Range Road (Yukon MINFILE 105H 036). North American Tungsten Corporation conducted a small exploration program of line-cutting, soil sampling and geophysical surveys. Gold-bearing quartz vein in float is reported from an area underlain by Neoproterozoic to Lower Cambrian carbonate and clastic metasedimentary rocks assigned to the Hyland Group.

Logan Resources Ltd. conducted an airborne magnetic survey, induced polarization/resistivity surveys, a gravity survey, soil and silt geochemical surveys, and geological mapping on their **Shell Creek** gold-copper property (Yukon MINFILE 116C 029). The property, located northwest of Dawson City, is underlain by Neoproterozoic to Cambrian Hyland Group. Preliminary mapping completed by Logan Resources revealed that, in the occurrence area, the Hyland Group is composed of recrystallized limestone at its base overlain by siliceous argillite, siltstone and sandstone. Within the siliceous sedimentary rocks, there occurs a narrow, banded iron formation composed of a magnetite-bearing slate (magnetite facies) interlaminated with a thin-banded, grey chert containing pyrite and pyrrhotite. Minor chloritic schist of probable volcanic origin overlies the iron formation. Gold mineralization is hosted in a series of quartz reefs, of which four are exposed within the Hyland Group meta-volcanic rocks. The quartz reefs are roughly 50 m to 75 m wide across the region of fold closure. Individual reefs consist of a number of stacked quartz veins that range from less than half a metre, to several metres in thickness, and contain visible gold and minor copper mineralization.

Epithermal gold mineralization in Yukon is associated with one of the following associations: 1) porphyry to epithermal transitions (e.g., Mount Nansen, Mount Freegold); 2) arc-like calderas (Mt. Skukum); or, 3) rift-related subaerial volcanic rocks (Grew Creek). Most systems are characterized by low-sulphidation,

Figure 32. *Quartz-adularia mineralization from the Grew Creek deposit.*

epithermal characteristics, but those in the epithermal-porphyry transition are of 'intermediate' sulphidation. 'Intermediate sulphidation' characteristics yield high silver contents, but lack copper enrichments or acid-related alteration.

Freegold Ventures Ltd. conducted an exploration program of geochemical surveys, a geophysical survey (induced polarization) and diamond drilling on the **Grew Creek** epithermal gold property (Yukon MINFILE 105K 003). Freegold acquired the Grew Creek property last summer and completed 12 diamond drill holes. Drilling was based on a new geological theory proposing that mineralization trends north-south, as opposed to previous interpretations which suggested that the mineralization trended east-west. Furthermore, this new interpretation suggests that the original deposit area may be open for potentially significant expansion. Results from last year's drilling program indicate that the mineralization does trend north, and that the quartz-adularia vein (Fig. 32) and vein stockwork system in the Golden Spike zone is faulted into at least four separate segments. Geochemical and geophysical surveys were conducted over the main deposit area to characterize the geochemical and geophysical signature of the deposit. The geophysical survey produced a good chargeability anomaly that coincided with the main deposit. Surveys in the area of Rat Creek and the Tarn zone, located 1 km and 1.5 km east of the main deposit respectively, produced targets with similar geophysical and geochemical signatures to the main deposit. A drill program began in late November to test the new zones.

Tagish Lake Gold Corporation continued to drill-test the **Skukum Creek** epithermal gold deposit south of Whitehorse (Yukon MINFILE 105D 022). Underground drilling (Fig. 33) tested the Rainbow Two zone. The Rainbow Two zone is hosted in the same mineralized structure as the Rainbow zone, located 250 m to the northeast, and the Two zone, located 240 m to the southwest. The drilling outlined a significant zone of gold-silver mineralization in the Rainbow Two zone. Highlights from drilling include 17.95 g/t Au and 140.5 g/t Ag over 2.65 m in hole SC05-35 (Table 12).

Table 12. *Drill results from the Rainbow Two zone.*

Hole	From m	To m	Length m	Au g/t	Ag g/t
SC05-25	No significant results				
SC05-26	No significant results				
SC05-27	66.45	67.25	0.80	2.62	208.0
	70.75	71.60	0.85	3.51	1400.0
SC05-28	68.90	72.20	3.30	4.15	56.1
includes	71.30	72.20	0.90	9.26	111.0
SC05-29	5.00	6.00	1.00	1.35	6.4
	35.35	36.27	0.92	3.86	35.8
includes	35.35	35.97	0.62	5.01	40.9
	40.85	41.45	0.60	5.23	34.7
SC05-30	50.90	51.20	0.30	2.23	74.6
	52.90	54.55	1.65	24.44	121.7
includes	52.90	53.30	0.40	25.90	148.0
	53.65	54.10	0.45	61.30	290.0
SC05-31	25.30	36.80	10.50	10.59	89.4
includes	25.55	26.80	1.25	44.70	130.0
includes	32.50	34.00	1.50	24.90	216.0
SC05-32	19.10	23.80	4.70	5.40	82.2
includes	19.10	19.80	0.70	34.20	198.0
SC05-33	15.50	16.10		1.14	36.0
	20.70	21.50		1.98	11.4
SC05-34	No significant results				
SC05-35	25.30	27.95		17.95	140.5
includes	25.30	26.05		21.80	236.0
includes	27.20	27.95		28.10	226.0
SC05-36	26.82	27.20		3.04	607.0

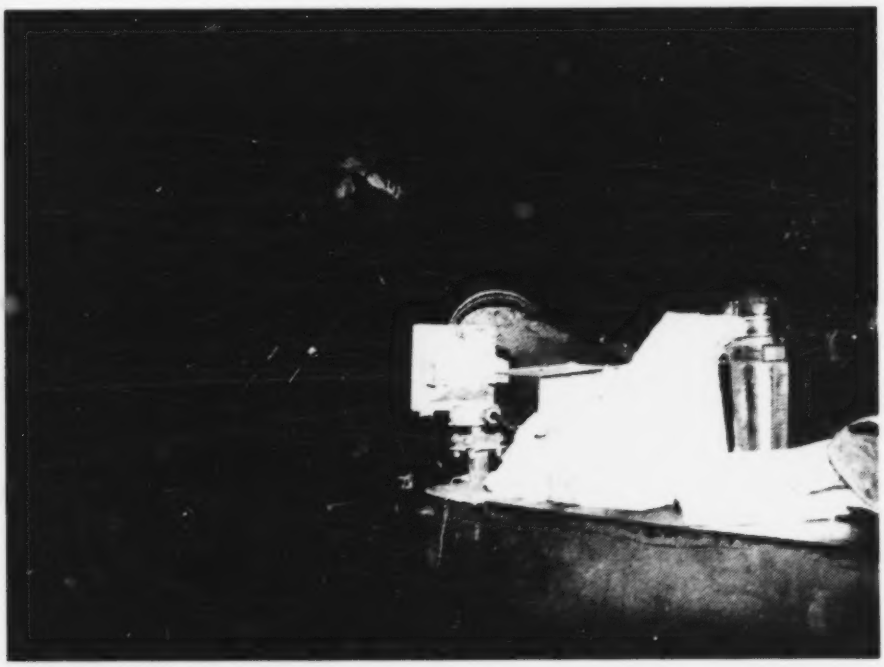


Figure 33. *Underground drill at the Rainbow Two zone at the Skukum Creek deposit.*

Table 13. *Kuhn Zone drill results.*

Hole	From m	To m	Au g/t	Ag g/t
SC05-37	125.05	130.60	0.99	13.1
includes	125.05	126.05	2.35	22.9
	139.10	142.85	2.83	106.1
including	141.90	142.85	5.04	172.0
SC05-38	93.90	95.10	1.23	16.0
	97.26	97.71	2.20	38.9
	109.12	110.46	1.03	15.6

Drilling was also directed at the depth extent of the Kuhn zone which is located on a structure that is sub-parallel to that hosting the Rainbow zone. Two holes were drilled which indicated that the gold-silver mineralized structure remains open to depth (Table 13).

Tagish Lake also contracted Laxey Mining Services Limited to update the preliminary feasibility study on the Skukum Creek deposits. MineTech prepared a measured and indicated resource estimate for Skukum Creek. The updated preliminary feasibility study indicates that the internal rate of return of the project would be 20.7% at gold and silver prices of $500 (U.S.) and $7.50 (U.S.) per troy ounce, respectively, for the base case.

CMC Metals Ltd. explored the **CMC** property (Yukon MINFILE 105B 021) with induced polarization surveying, trenching and diamond drilling directed at high-grade, silver-zinc veins. Trench samples returned values up to 2206 g/t Ag with 2.34% Zn. Drilling was directed at a number of historical veins that are known on the property. High-grade silver was encountered in a number of holes. Hole DH05-08 intersected 2.45 m grading 4.21% Pb, 3.12% Zn and 899 g/t Ag. The historical work on the property did not assess the zinc content of the veins. By contrast, hole DH05-07 intersected 22.7 m of 4.63% Zn and 76 g/t Ag. Results from the program will be used to re-evaluate historical resources that are reported for the property.

GEMSTONES

True North Gems continued with an expanded program of plant upgrading, camp construction, geological mapping, prospecting and bulk sampling at the **Tsa Da Glisza** emerald property. The company released results of the combined 2003 and 2004 bulk sampling programs, which led them to perform the expanded program in 2005. The program of extensive trenching and mini-bulk sampling (Fig. 34) was carried out in order to confirm grade, continuity of grade, and mineralization along strike and to depth. The program of trenching and mini-bulk sampling will also allow for the recovery of sufficient emeralds to permit completion of a pre-feasibility study in winter 2005/spring 2006.

Table 14. *Tsa Da Glisza bulk sample rough stone grades.*

	Tonnes extracted	**Gem g/t**	**Near-gem g/t**
2003 surface	963.6	0.39	3.77
2003 underground	987.2	0.30	3.09
2004 surface	582.3	1.44	12.88
combined	**2533.1**	**0.59**	**5.66**
	Tonnes extracted	**Non-gem g/t**	**Total beryl kg**
2003 surface	963.6	2.91	6.8
2003 underground	987.2	6.43	9.1
2004 surface	582.3	22.79	21.1
combined	**2533.1**	**9.09**	**15.3**

A total of 3306 tonnes of mini-bulk samples, from material stockpiled from the 2003 underground program and from 2004 and 2005 trenching, were processed in the on-site plant that achieved production rates up to 125 tonnes per day. A total of 12 kg of clean emerald rough was recovered from 254 kg of hand-picked mineralized material. A total of 4044.67 g of gem and near-gem emerald rough was sent for cutting, and by year-end, True North had received the first shipment of cut stones from the cutting factory. Results from all shipments are expected in the first quarter of 2006. In addition to the material processed, 1600 tonnes of material were excavated in 2005 and stockpiled for processing in 2006.

Figure 34. *Bulk sampling at the Tsa Da Glizsa emerald property.*

BULK SAMPLE VALUATIONS

The wholesale valuation of emerald polished goods was completed by three valuators and focused on the inventory derived from the 2003 to 2004 surface and underground bulk sample. The wholesale value of the bulk sample in US dollars per tonne ranged from $5.61 to $33.61 with an average of $19.43, while the retail value ranged from $46.93 to $134.

COAL

Cash Minerals Ltd. completed a scoping study on the **Division Mountain Coal** project. The deposit is located 20 km west of Highway 2 and Yukon's main power grid, and 300 km from the closest tidewater port at Skagway, Alaska. The study supports the potential for the economic development of an open-pit mine based on the annual production of approximately 1 375 000 tonnes of saleable coal. The scoping study is also based on a measured and an indicated resource of 51.5 million tonnes as defined by Norwest Corporation, a leading North American coal and engineering consultancy (Norwest Corporation, unpublished data). Cash Minerals Ltd. completed a 5-hole, 2800-m diamond drilling program (Fig. 35) designed to upgrade indicated resources into the measured category. The drilling and sampling program will provide information on coal-quality variation within each seam. It will also increase drill-hole density, thus increasing the confidence level in resource estimates. The data from the exploration project will provide the company with enough information to complete a bankable feasibility study which is anticipated for release in the first quarter of 2006.

Cash Minerals Ltd. and Alaska Industrial Development and Export Authority (AIDEA) are negotiating the use of the Skagway ore terminal for the shipping of Division Mountain coal. AIDEA is the contractual owner of the terminal, and it has use of the docking facility in conjunction with White Pass and Yukon Rail.

Figure 35. *Diamond drill at the Division Mountain Coal project.*

ACKNOWLEDGEMENTS

This report is based on public information gathered from a variety of sources. It also includes information provided by companies through press releases, personal communications and property visits conducted during the 2005 field season. The cooperation of companies and individuals in providing information, as well as their hospitality, time and access to properties during field tours, is gratefully acknowledged. Safe, reliable helicopter transportation provided by Helidynamics, TransNorth and Fireweed helicopters during the field season is always appreciated. The editing skills of Leyla Weston, Diane Emond, Lara Lewis and Geoff Bradshaw are also appreciated.

REFERENCES

BC Minfile, 2005. Ministry of Energy, Mines and Petroleum Resources, British Columbia.

Burke, M., Hart, C.J.R., Lewis, L.L., 2005. Models for Epigenetic gold exploration in the northern Cordilleran orogen, Yukon, Canada. *In:* Mineral Deposit Research: Meeting the Global Challenge, F. Bierlein and J. Mao (eds.), Proceedings of the Eighth Biennial SGA Meeting, Beijing, China, August 18-21, 2005, p. 525-528.

Deklerk, R. and Traynor, S., 2005. Yukon MINFILE – A database of mineral occurrences. Yukon Geological Survey, CD-ROM.

Hart, C.J.R. and Lewis, L.L., 2006 (this volume). Gold mineralization in the Upper Hyland River area: A non-magmatic origin. *In:* Yukon Exploration and Geology 2005, D.S. Emond, G.D. Bradshaw, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 109-125.

Hunt, J.A., Abbott, J.G. and Thorkelson, D.J., 2006 (this volume). Unconformity-related uranium potential: Clues from Wernecke Breccia, Yukon. *In:* Yukon Exploration and Geology 2005, D.S. Emond, G.D. Bradshaw, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 127-137.

Israel, S., Tizzard, A. and Major, J., 2006 (this volume). Bedrock geology of the Duke River area, parts of NTS 115G/2, 3, 4, 6 and 7, southwestern Yukon. *In:* Yukon Exploration and Geology 2005, D.S. Emond, G.D. Bradshaw, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 139-154.

Tafti, R. and Mortensen, J.K., 2004. Early Jurassic porphyry(?) copper (-gold) deposits at Minto and Williams Creek, Carmacks Copper Belt, western Yukon. *In:* Yukon Exploration and Geology 2003, D.S. Emond and L.L. Lewis (eds.), Yukon Geological Survey, p. 289-303.

Traynor, S., 2006 (this volume). Yukon Mining Incentives Program, 2005. *In:* Yukon Exploration and Geology 2005, D.S. Emond, G.D. Bradshaw, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 47-48.

APPENDIX 1: 2005 EXPLORATION PROJECTS

PROPERTY	COMPANY/OWNER	MINFILE # or (1:50 000 NTS)	WORK TYPE	COMMODITY
Blackfox	RyanWood Exploration	115O 014	G,GC,GP	Au
Clear Creek	Stratagold Corporation	115P 012,013	G	Au
Crown Jewel	RyanWood Exploration	115O 088	GC,GP,P	Au
Dragon Lake	Eagle Plains Resources Ltd.	105J 007	G,GP,T	Au
Dublin Gulch	Stratagold Corporation	106D 025	G,DD	Au
Heidi	Logan Resources	116A 037	G,GC,GP	Au
Hy	Dentonia Resources Ltd.	105H 102	G,DD	Au
Hyland Gold	Stratagold Corporation/Northgate Minerals Corp.	95D 011	G,DD	Au
Ice	Acero-Martin Exploration Inc.	115P 006	G,DD	Au
Indian River	Boulder Mining Corporation	115O 054	G,P	Au
Ketza River	YGC Resources Ltd.	105F 019	G,GC,DD	Au
King Solomons Dome	JAE Resources	115O 068	G,GC,T	Au
Lone Star	Klondike Star Mineral Corporation	115O 072	G,GC,DD	Au
McFaull	New World Resource Corporation	116B 157	G,PD	Au
Mike Lake	Bashaw Capital Corporation	116A 012	G,GP,GC,P,DD	Au
Tin	Madelena Ventures Inc.	116B 157	G,GC,GP	Au
Typhoon	Curlew Lake Resources Inc.	115P 060	G,GC,P	Au
White River	Madelena Ventures Inc.	115O 011,012	G,GC,GP	Au
Grew Creek	Freegold Resources Inc.	105K 009	G,GP,DD	Au-Ag
Skukum Creek	Tagish Lake Gold Corporation	105D 022	DD	Au-Ag
Sonora Gulch	Firestone Ventures Inc.	115J 008	G,GP	Au-Ag
Spice	Klondike Gold Corporation	105G 150	G	Au-Ag
Shell Creek	Logan Resources Ltd.	116C 029	G,GP,GC	Au-Cu-U
Pigskin	Strategic Metals Ltd.	105B 107	G,GC	Ag-Zn
CMC Silver (Silver Hart)	CMC Metals Ltd.	105B 021	G,GP,GC,T,DD	Ag-Zn
Meister	Tanana Exploration	105B 114	G,P,GC	Ag-Zn
Cuprum	Manson Creek Resources Ltd.	105E 008	G,P,T,GP,GC	Cu-Au
Hat (Whitehorse Copper)	Kluane Drilling	105D 125	DD	Cu-Au
Lucky Joe	Kennecott Canada/Copper Ridge Explorations Inc.	115O 051	G,GP,DD	Cu-Au
Thistle/Shamrock	Copper Ridge Explorations Inc.	(115O/6)	G,GC,P	Cu-Au
Carmacks Copper	Western Silver Corporation	115I 008	ES,PF	Cu-Au
Minto Project	Sherwood Copper Corporation	115I 021,022	G,GP,DD,F	Cu-Au-Ag
Bond	Cash Minerals Ltd./ Twenty Seven Capital Corporation	106D 065	G,DD	Cu-Au-U
Ironman	Copper Ridge Explorations Inc.	(116A/15)	G,GP,P	Cu-Au-U
Yukon Olympic	Janina Resources Ltd./ Copper Ridge Explorations Inc.	116G 082	G,GP,DD	Cu-Au-U
Rusty Springs	Eagle Plains Resources Ltd.	116K 003	DD	Cu-Pb-Zn-Ag

Abbreviations

BS - bulk sample
D - development
DD - diamond drilling
ES - environmental studies
F - feasibility
G - geology
GC - geochemistry
GP - geophysics
IOCG - iron-oxide copper gold
M - mining
PD - percussion drilling
PF - prefeasibility
R - reconnaissance
T - trenching
U/GD - underground development

Appendix 1 (continued): 2005 EXPLORATION PROJECTS

PROPERTY	COMPANY/OWNER	MINFILE # or (1:50 000 NTS)	WORK TYPE	COMMODITY
Marg	Yukon Gold Corporation Inc.	106D 009	G,DD	Cu-Pb-Zn-Ag-Au
Four Corners	Strategic Metals Ltd.	105G 146	G,P	Cu-Zn
Money	Yukon Zinc Corporation	105H 078	G,GC	Cu-Zn
Tsa da Glizsa	True North Gems Inc.	105G 147	G,P,BS	emerald
Moly	Strategic Metals Ltd.	105F 001	G,P	molybdenum
Rams Horn	Ordorado Resources Corporation	105D 002,3,4	G,GC,P	molybdenum
Red Mountain Moly	Tintina Mines Ltd.	105C 009	PF,ES	molybdenum
Stormy Mountain	E-Energy Ventures Inc.	105F 011	G,P	molybdenum
Burwash	Strategic Metals Ltd./Golden Chalice Resources	115G 100	G,DD	Ni-Cu-PGE
Canalask	Falconbridge Limited/StrataGold Corporation	115F 045	G	Ni-Cu-PGE
Klu	Resolve Ventures Inc.	115G 003,098,099	G,P	Ni-Cu-PGE
Ultra	Klondike Gold Corporation	115B 008	G,GC,P	Ni-Cu-PGE
Wellgreen	Coronation Minerals Inc./Northern Platinum Ltd.	115G 024	G,GC,T,PD	Ni-Cu-PGE
Blende	Eagle Plains Resources Ltd./Blind Creek Resources	106D 064	G,GP,GC	Pb-Zn-Ag
Convert	Strategic Metals Ltd.	105B 143	P,T	Pb-Zn-Ag
Howard's Pass	Pacifica Resources Ltd.	105I 012	G,GC,GP,DD	Pb-Zn-Ag
Kathleen Lake area	Manson Creek Resources Ltd.	106C 098	G,P	Pb-Zn-Ag
Thunderstruck	Yukon Zinc Corporation	(105G/8)	G,DD	Pb-Zn-Cu-Ag-Au
Tidd	Strategic Metals Ltd.	105J 029	G,GC,GP,P	Pb-Zn-Cu-Ag-Au
Wolverine	Yukon Zinc Corporation	105G 073	G,DD,BS,F,ES	Pb-Zn-Cu-Ag-Au
Alle	Cash Minerals Ltd./ Twenty Seven Capital Corporation	105B 126	G,P	U
Curie	Signet Minerals Inc.	106E 031	G,GC,GP	U
Igor	Cash Minerals Ltd./ Twenty Seven Capital Corporation	106E 009	G,DD	U
Lumina	Cash Minerals Ltd./ Twenty Seven Capital Corporation	106C 069	G,GP,DD	U
Pedlar	Cash Minerals Ltd./ Twenty Seven Capital Corporation	115J 092	G	U
Steel	Cash Minerals Ltd./ Twenty Seven Capital Corporation	106D 049	G,DD	U
U	RyanWood Exploration	115J 093	G,GC,P	U
Nor	International KRL Resources Corporation	106L 061	G,GC,GP,P	U-Cu-Au
Pike	Strategic Metals Ltd.	106E 040	G,DD	U-Cu-Au
Kalzas	Copper Ridge Explorations Inc.	105M 066	G,DD	WO_3
Logtung	Strategic Metals Ltd.	105B 039	G	WO_3
MacTung	North American Tungsten Corporation	105O 002	G,DD,BS	WO_3
Division Mountain	Cash Minerals Ltd.	115H 013	G,DD,F	Co

Abbreviations

BS - bulk sample
D - development
DD - diamond drilling
ES - environmental studies
F - feasibility
G - geology
GC - geochemistry
GP - geophysics
IOCG - iron-oxide copper gold
M - mining
PD - percussion drilling
PF - prefeasibility
R - reconnaissance
T - trenching
U/GD - underground development

APPENDIX 2: 2005 DRILLING STATISTICS

Company	Property	MINFILE # or (1:50 000 NTS)	Drill holes	
			# holes	metres
Acero-Martin Exploration Inc.	Ice	115P 006	8	1514
Bashaw Capital Corporation	Mike Lake	116A 012	18	2220
Cash Minerals Ltd.	Division Mountain	115H 013	5	2800
Cash Minerals Ltd./Twenty Seven Capital Corporation	Bond	106D 065	7	735
Cash Minerals Ltd./Twenty Seven Capital Corporation	Igor	106E 009	7	1121
Cash Minerals Ltd./Twenty Seven Capital Corporation	Steel	106D 049	3	581
Cash Minerals Ltd./Twenty Seven Capital Corporation	Lumina	106C 069	7	504
CMC Metals Ltd.	CMC Silver (Silver Hart)	105B 021	12	1000
Kennecott Canada/Copper Ridge Explorations Inc.	Lucky Joe	115O 051	5	1049
Janina Resources/Copper Ridge Explorations Inc.	Yukon Olympic	116G 082	5	504
Copper Ridge Explorations Inc.	Kalzas	105M 066	5	397
Dentonia Resources Ltd.	Hy	105H 102	3	232
Eagle Plains Resources Ltd.	Rusty Springs	116K 003	2	405
Freegold Resources Inc.	Grew Creek	105K 009	6	960
Klondike Star Mineral Corporation	Lone Star	115O 072	32	4830
Kluane Drilling	Hat (Whitehorse Copper)	105D 053	4	838
North American Tungsten Corporation	MacTung	105O 002	25	6668
New World Resource Corporation	McFaull	116B 157	43*	1800
Pacifica Resources Ltd.	Howard's Pass	105I 012	53	8317
Sherwood Copper Corporation	Minto	115I 021,022	57	6772
Stratagold Corporation	Dublin Gulch	106D 025	34	8102
Stratagold Corporation/Northgate Minerals Corporation	Hyland Gold	95D 011	4	985
Strategic Metals Ltd./Golden Chalice Resources	Burwash	115G 100	7	520
Strategic Metals Ltd.	Pike	106E 040	3	278
Tagish Lake Gold Corporation	Skukum Creek	105D 022	14	850
YGC Resources Ltd.	Ketza River	105F 019	95	12485
Yukon Gold Corporation	Marg	106D 009	4	1200
Yukon Zinc Corporation	Wolverine	105G 073	61	11713
Yukon Zinc Corporation	Thunderstruck	(105G/8)	3	1476
Total				**80 856**

*Drilled using rotary percussion. All other holes were drilled using a diamond drill.

Yukon Placer Mining Overview 2005

William LeBarge[1]
Yukon Geological Survey

LeBarge, W., 2006. Yukon Placer Mining Overview 2005. *In:* Yukon Exploration and Geology 2005, D.S. Emond, G.D. Bradshaw, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 41-45.

PLACER MINING

Today, more than 100 years after the discovery of gold in the Yukon, placer mining is still an important sector in the Yukon's economy. Over 16.6 million crude ounces (517 tonnes) of placer gold have been produced to date in the Yukon – at today's prices that would be worth more than $7 billion.

Approximately 450 people were directly employed at 128 placer mines in 2005 – and at least several hundred more were employed in businesses and industries that serve the placer mining industry. Most of the placer operations are small and family-run, with an average of three or four employees. The majority of active placer mining operations were in the Dawson Mining District, followed by the Whitehorse Mining District and the Mayo Mining District. No active mines are currently in the Watson Lake Mining District. The total Yukon placer gold production in 2005 was 70,322 crude ounces (2 187 260 g), compared to 76,152 crude ounces (2 368 610 g) in 2004. The value of this 2005 gold production was $29.9 million.

Approximately 87% of the Yukon's placer gold was produced in the Dawson Mining District, which includes the unglaciated drainages of Klondike River, Indian River, west Yukon (Fortymile and Sixtymile rivers, and the Moosehorn Range) and lower Stewart River. The remaining gold came from the glaciated Mayo and Whitehorse mining districts, which include the placer areas of Clear Creek, Mayo, Dawson Range, Kluane, Livingstone and Whitehorse South.

Reported placer gold production from Indian River drainages in 2005 decreased compared to the previous year, from 2004's 27,366 crude ounces (851 178 g) to 26,473 crude ounces (823 403 g). Some of this decrease came from operations in Dominion Creek, but this was partially offset by some increases which were the result of new operations on Indian River.

In Klondike area drainages, production dropped slightly to 12,627 crude ounces (392 744 g) from 2004's 13,546 crude ounces (421 328 g), partially because of a decrease in gold coming from operations on Last Chance Creek. An increase in production came from bench deposits ("White Channel Gravels") on Bonanza and Hunker creeks.

A decrease was also seen in West Yukon (Sixtymile, Fortymile and Moosehorn Range) placer gold production, from 2004's 15,065 crude ounces (468 574 g) to 12,314 crude ounces (383 008 g). Matson Creek and Sixtymile River had fewer

[1]*bill.lebarge@gov.yk.ca*

Figure 1. *Yukon placer mining areas.*

royalties reported, while figures increased from Kate Creek. Fifty Mile Creek, a tributary of Sixtymile River, began producing for the first time in 2005.

Reported production from operations in the Lower Stewart drainages was also down in 2005, to a total of 9572 crude ounces (297 722 g) from 11,496 crude ounces (357 565 g) the previous year. All operations, including those on Thistle and Black Hills creeks, reported less gold.

As usual, little gold was reported from Clear Creek drainages although several operations were active in 2005. The total reported gold from royalties increased slightly to 255 crude ounces (7931 g) from 207 crude ounces (6438 g).

In the Dawson Range, reported placer gold production dropped slightly from 1619 crude ounces (50 372 g) to 1545 crude ounces (48 054 g).

In the Mayo area, gold production decreased from 2502 crude ounces (77 821 g) to 2340 crude ounces (72 782 g).

In the Kluane area, reported placer gold production rose significantly from 1912 crude ounces (59 470 g) to 2667 crude ounces (82 953 g). The increase came mainly from Gladstone Creek.

The Livingstone area was inactive, although 17.2 crude ounces (535 g) of gold were reported the previous year in royalties.

In the Whitehorse South area, some mining and testing activity took place on Moose Brook and Wolverine Creek, although no royalties were recorded. Iron Creek, a tributary of Sydney Creek, had 27.4 crude ounces (852 g) reported in royalties.

PLACER EXPLORATION

Although it is generally unrecorded, exploration on placer mining properties has been a part of the process for many miners since they began to mine. Traditional methods of sampling and exploration include auger, reverse circulation and churn drilling, and geophysics including seismic surveys, ground-penetrating radar and

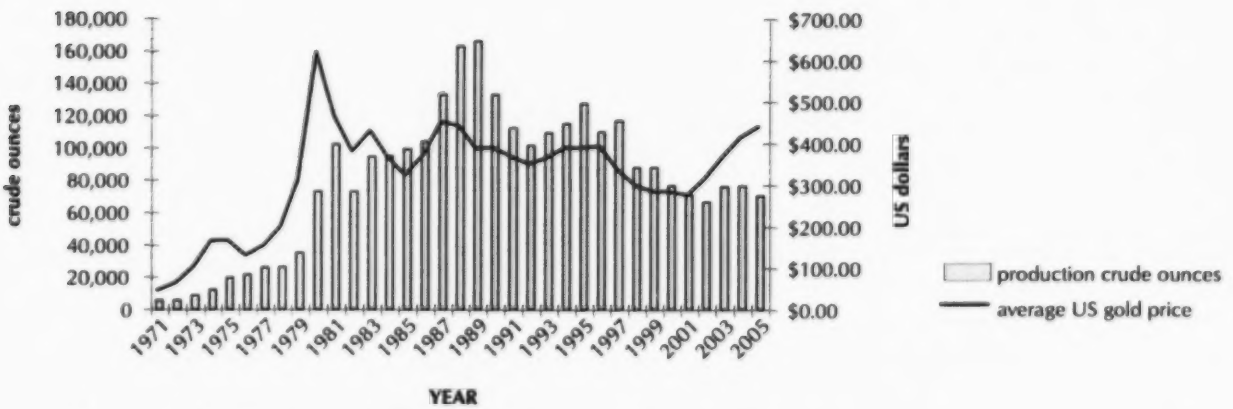


Figure 2. *Yukon placer gold production figures and average US gold price, 1971-2005.*

magnetometer surveys. Trenching and bulk sampling also continue to be well used methods of testing placer ground.

The Yukon Mining Incentives Program contributed funding to nine placer exploration programs in 2005. More information about this program can be obtained from Steve Traynor, Economic Geologist, Steve.Traynor@gov.yk.ca, (867) 456-3828 or at http://www.emr.gov.yk.ca/mining/programs/ymip.html.

One of the highlights of placer exploration in 2005 was the continued activity by Boulder Mining Corporation on their Indian River property 30 km south of Dawson City. The company produced a total of 436 crude ounces (13 561 g) of gold from three areas in two separate pits. The property consists of a large-volume bench deposit which lies above the modern valley of Indian River. Generalized stratigraphy consists of a Tertiary-age, 'White Channel' gold-bearing gravel on a bedrock terrace, which is in part overlain by glaciofluvial and glaciolacustrine sediments deposited during the earliest pre-Reid glaciation.

Exploration on this property in 2005 consisted of an extensive program of alluvial bulk sampling, alluvial sampling, and hard-rock mapping and sampling. Average grades from each of the three areas mined were 0.14 g/m^3, 0.23 g/m^3 and 0.18 g/m^3. A total of 76 828 cubic metres were sluiced. A production-scale program for the property is being considered for the 2006 season.

Similar geologic and geomorphic settings to that of Indian River exist in other unglaciated drainages in the Yukon, specifically in Fortymile and Sixtymile areas. Although limited amounts of placer exploration have taken place on alluvial terraces in these areas, they remain poorly understood. It may be possible that significant quantities of gold lie in these bench deposits which have yet to be methodically evaluated.

The long-term health of the Yukon's placer mining industry requires that new placer gold reserves be discovered as traditional mining areas become depleted. With the application of new placer exploration and research techniques and new ideas, additional placer gold reserves may be found in non-traditional, more complex geological settings.

The staff at the Yukon Geological Survey and the Client Services and Inspection Division (Department of Energy, Mines and Resources, Yukon government) can provide information and advice regarding placer mining in the Yukon. Publications on placer mining in the Yukon are available through the Yukon Geological Survey office at Room 102, Elijah Smith Building, 300 Main Street, Whitehorse, Yukon. Many recent publications and maps can be downloaded for free from our website at www.geology.gov.yk.ca.

APERÇU

Approximativement 450 personnes trouvaient directement de l'emploi dans 128 exploitations minières de placers au Yukon en 2005 et au moins plusieurs centaines d'autres étaient à l'emploi d'entreprises et d'industries desservant l'industrie minière des placers. La production totale d'or tirée de placers au Yukon au 5 décembre 2005 s'élevait à 70 317 onces brutes (2 187 115 g), comparativement à 76 152 onces brutes (2 368 610 g) en 2004. La valeur de cette production pour 2005 s'élevait à 29,9 millions de dollars. Environ 87 % de la production d'or des placers du Yukon provient du district minier de Dawson, qui couvre les bassins versants non glaciés de la rivière Klondike, de la rivière Indian, de la branche ouest du fleuve Yukon et de la basse rivière Stewart. Le reste de la production d'or provenait des districts miniers glaciés de Mayo et de Whitehorse englobant les régions placériennes de Clear Creek, de Mayo, de la chaîne de Dawson, de Kluane, de Livingstone et de Whitehorse Sud.

L'exploration des propriétés minières de placers fait partie du processus pour un grand nombre de mineurs depuis qu'ils ont entrepris l'exploitation minière; elle s'effectue à la tarière, par forage à circulation inverse et au battage, par levés sismiques, par géoradar et par levés magnétométriques ainsi que par excavation de tranchées et échantillonnage en vrac. La poursuite des activités de la Boulder Mining Corporation dans sa propriété Indian River à 30 km au sud de Dawson City a constitué l'un des faits saillants de l'exploration à la recherche de placers en 2005. À cet endroit, un volumineux dépôt de terrasse domine la vallée contemporaine de la rivière Indian. La stratigraphie générale consiste en gravier aurifère de «White Channel» du Tertiaire reposant sur une terrasse du substratum et en partie recouvert par des sédiments fluvio-glaciaires et glacio-lacustres déposés pendant la plus précoce des glaciations antérieures à la glaciation de Reid. Un programme d'échantillonnage en vrac et d'échantillonnage d'alluvions ainsi que de cartographie et d'échantillonnage de la roche dure a été exécuté et un programme à l'échelle de production est envisagé pour la campagne de 2006. Des cadres géologique et géomorphologique similaires à celui de la rivière Indian existent dans d'autres bassins versants non glaciés au Yukon, en particulier dans les régions de Fortymile et de Sixtymile. D'importantes quantités d'or pourraient reposer dans ces dépôts de terrasses qui restent à évaluer méthodiquement.

La vitalité à long terme de l'industrie de l'exploitation minière de placers au Yukon exige que de nouvelles réserves d'or placérien soient découvertes à mesure que s'épuisent celles des régions traditionnellement exploitées. L'application de nouvelles méthodes d'exploration et de recherche de gîtes placériens combinée à des idées nouvelles pourrait permettre de découvrir des réserves additionnelles d'or placérien dans des cadres géologiques non traditionnels plus complexes.

Yukon Mining Incentives Program 2005

Steve Traynor[1]
Yukon Geological Survey

Traynor, S., 2006. Yukon Mining Incentives Program, 2005. *In:* Yukon Exploration and Geology 2005, D.S. Emond, G.D. Bradshaw, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 47-48.

The Yukon Mining Incentives Programs (YMIP) received 75 applications for funding by the March 1, 2005 submission deadline. Contribution agreements totaling $1 009 000 were subsequently issued to 63 successful applicants. Proposals approved for funding included 12 under the Grassroots–Prospecting module, 12 under the Focused Regional module, and 39 under the Target Evaluation module.

The continuing trend of increasing gold prices, combined with copper prices that have doubled in the past two years, has resulted in high levels of exploration targeting these two commodities. This focus was mirrored by nearly three-quarters of the 54 exploration projects (see Fig. 1) which proceeded this year with a portion of their risk-capital provided by YMIP (approximately $728 000 in 2005).

Reported highlights of this year's YMIP activities already include the signing of a handful of option deals, a significant increase in expenditures relating to the evaluation of new occurrences, and a corresponding increase in claim staking directly related to these activities. The recent creation of the Focused Regional module, designed to appraise the potential of under explored areas of Yukon, has already resulted in significant new discoveries.

Year-to-year statistics routinely show expenditure levels are typically two to three times the portion funded by YMIP. At the upper end of this scale, and over the longer term of the past two decades, expenditures on a number of specific projects have exceeded twenty times the value of the initial YMIP contribution.

Significant discoveries made with initial assistance from YMIP include the Andrew (Zn, Pb, Ag), Canalask (Ni), Curie (U), Indian River (Au), and Yukon Olympic (Cu, Au) projects, to name a few. In the past five years, together these projects have accounted for total exploration expenditures of nearly $4 million of which over $3 million was spent in Yukon.

Regardless of what 'yardstick' is used to measure the successes of YMIP and other similar programs, these programs are continuing to result in grassroots discoveries of new mineral occurrences. Many of these discoveries, which develop into viable early stage projects, are now beginning to attract the attention of upper tier junior and major mining companies.

Over the past few years, grassroots exploration has consistently been identified as lacking in many jurisdictions.

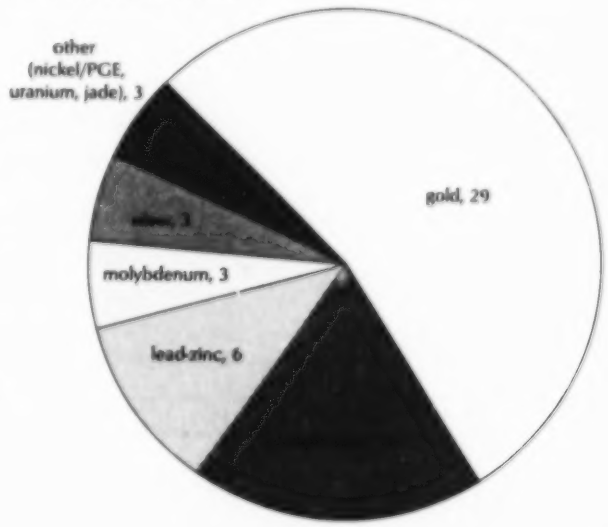


Figure 1. *Number of 2005 Yukon Mining Incentives Program projects targeting various commodities.*

[1]steve.traynor@gov.yk.ca

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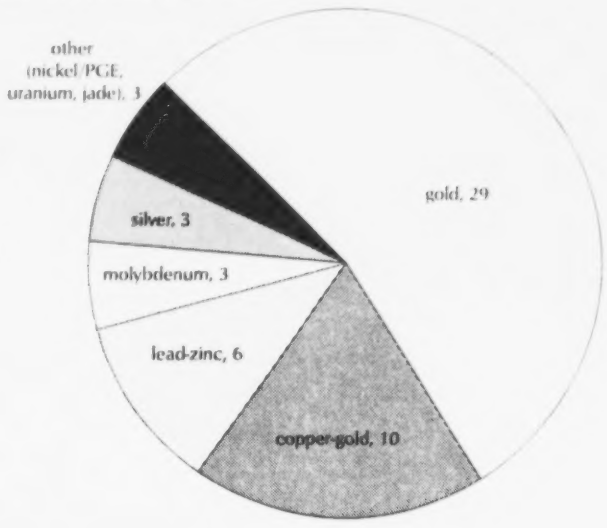

Figure 1. *Number of 2005 Yukon Mining Incentives Program projects targeting various commodities.*

[1]steve.traynor@gov.yk.ca

As mining companies exhaust their current project inventories, it is likely that the need for new projects will increasingly be filled by the generative capacity of mining incentive programs such as YMIP.

RÉSUMÉ

Le Programme d'encouragement des activités minières du Yukon (PEAMY) a reçu 75 demandes de financement cette année. Les accords de contribution ont permis à 63 demandeurs d'obtenir 1 009 000 $ au total. Parmi les demandes approuvées, 12 ont obtenu un soutien dans le cadre des programmes d'exploration primaire et de prospection, 12 dans le cadre du programme régional d'exploration de régions sous-explorées et 39 dans le cadre du programme d'évaluation de cibles.

La tendance constamment à la hausse du prix de l'or, combinée au doublement du prix du cuivre au cours des deux dernières années, a suscité la majeure partie des activités d'exploration au Yukon et justifié la plupart des octrois dans le cadre du PEAMY concernant ces deux produits de base. Au nombre des faits saillants rapportés pour cette année, on compte déjà la signature de quelques ententes d'options, une augmentation notable des dépenses engagées pour l'évaluation de nouvelles occurrences et une augmentation correspondante des jalonnements de concessions minières en rapport direct avec ces activités. Une analyse plus poussée de cette tendance indique que la récente création du programme régional, conçu pour évaluer le potentiel de régions sous-explorées du Yukon, donne lieu à d'importantes découvertes.

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Yukon Geological Survey

Grant Abbott[1] and staff

Abbott, J.G. and staff, 2006. Yukon Geological Survey. *In:* Yukon Exploration and Geology 2005, D.S. Emond, G.D. Bradshaw, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 51-66.

OVERVIEW

The Yukon Geological Survey (YGS; Fig. 1) took a significant step forward in its evolution and development when, in September of this year, it became a Directorate within the Oil, Gas and Minerals Division of the Department of Energy, Mines and Resources. YGS is no longer part of the Mineral Resources Division and now has an expanded mandate to provide information to support exploration, development and management of not only mineral resources, but also oil and gas and to a lesser extent, other resources such as forests. YGS is currently being reorganized to effectively meet its new responsibility for both a higher level of management and a wider mandate. YGS is now divided into Technical Services, Mineral Services, Regional Geology, and Mineral and Hydrocarbon Assessments (Fig. 2). As an interim step, Don Murphy has been appointed acting manager of Regional Geology and Craig Hart has been appointed acting manager of Technical and Mineral

Figure 1. *Yukon Geological Survey staff from left to right: Julie Hunt, Amy Tizzard (student), Mike Burke, Steve Israel, Olwyn Bruce, Steve Traynor, Lee Pigage, Erin Trochim (student), Charlie Roots, Don Murphy, Lara Lewis, Craig Hart, Geoff Bradshaw, Leyla Weston, Jeff Bond, Rod Hill, Maurice Colpron, Kelly Coventry, Diane Emond, Panya Lipovsky, Ali Wagner, Grant Lowey, Robert Deklerk, Amy Stuart, John Mair, Bill LeBarge, Grant Abbott, Karen Pelletier.*

[1]grant.abbott@gov.yk.ca

Services. Other functions report to Grant Abbott, who has been appointed acting director. Rod Hill remains as operations manager.

The past year also saw a number of staff changes. We are pleased to welcome Tammy Allen and Tiffany Fraser to YGS. They are filling two petroleum assessment geologist positions provided by the Oil and Gas Branch. Ken Galambos is on a temporary assignment with the Department of Economic Development until March 31, 2006. Steve Traynor is taking his place as Yukon Mining Incentives Program (YMIP) coordinator. Jo-Anne van Randen is filling in for Steve as economic geologist. Amy Stuart is back with us on a short-term assignment as GIS technician. Monique Raitchey is on temporary assignment with another department until the fall of 2006. She is being ably replaced as office manager by Kelly Coventry. We were also fortunate to have John Mair with us for part of the year on a post doctoral fellowship from the Mineral Deposit Research unit at the University of British Columbia. Congratulations to Craig Hart for completing his PhD thesis at the University of Western Australia in Perth, and for winning both the Julian Boldy Award for one of the three best economic geology presentations at the annual meeting of the Geological Association of Canada, and a service award for his years of work as editor of GEOLOG, the Association newsletter. Julie Hunt is also to be congratulated for completing her PhD thesis at James Cook University in Townsville, Australia.

YGS continued to enjoy stable core funding, but a department-wide shortfall in salary dollars forced the elimination of one vacant GIS technician position. We hope to reallocate resources to fill this position in the New Year. We did suffer from a shortfall in short-term funding with the winding down of the DIAND (Indian and Northern Affairs Canada) Knowledge and Innovation Fund and NRCan Targeted Geoscience Initiative, but more than made up for it with funding for geophysical surveys from the new DIAND Northern Economic Development program. Although the renewed TGI -3 was not available to Yukon, and the NRCan Cooperative Geological Mapping Strategy was not funded by the

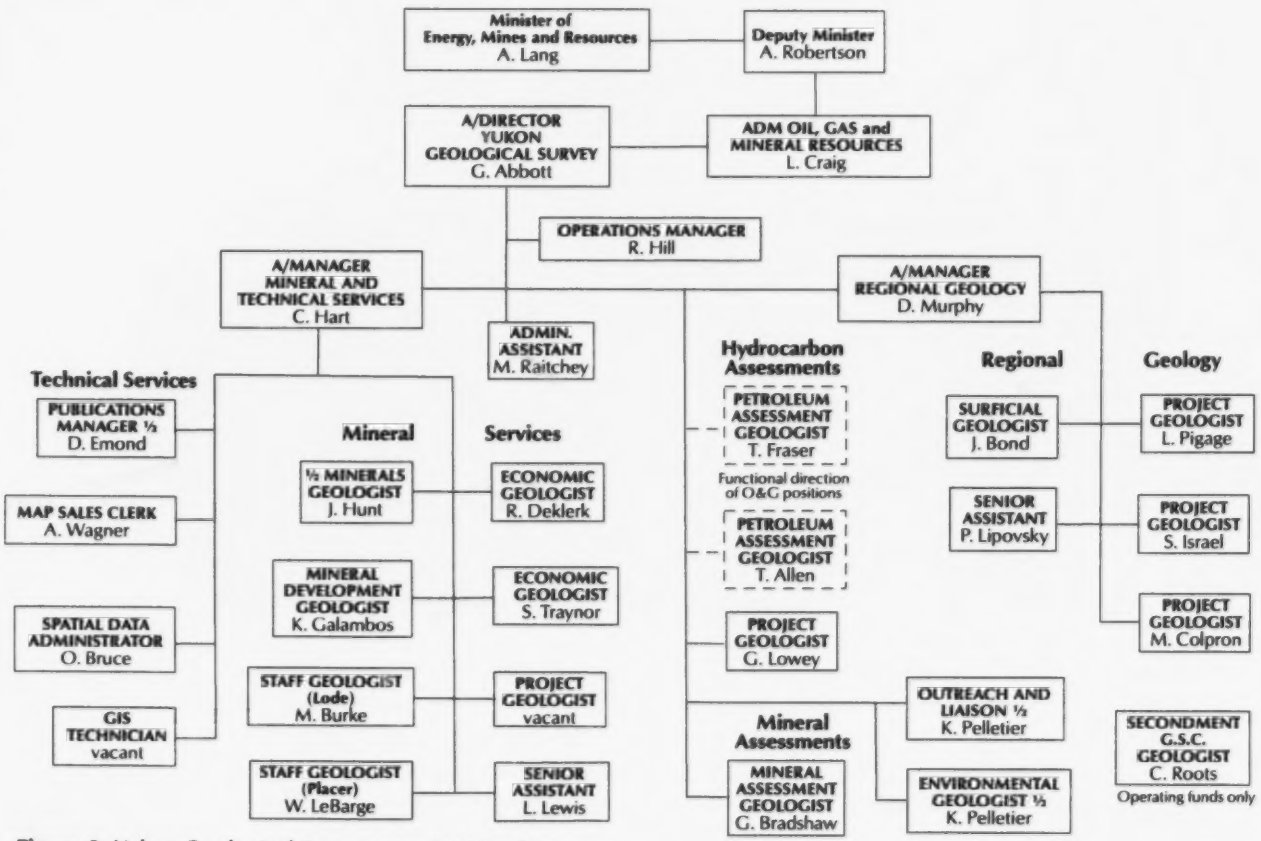

Figure 2. *Yukon Geological Survey organization chart.*

federal government, we remain optimistic that new funding may be available from the DIAND Northern Economic Development Program or the DIAND/ Government of Yukon Northern Strategy.

The Technical Liaison Committee to YGS reviews our program twice a year. We are grateful to Chair Gerry Carlson and the committee for their valuable support and constructive advice. This year we said goodbye to Moira Smith and Bernie Kreft and welcomed Rob Carne and Shawn Ryan in their places. Rob and Shawn are two of the most knowledgeable and experienced explorationists in the Yukon and we look forward to their sound advice. Other members are Al Doherty, Jean Pautler, Forest Pearson, Jim Mortensen, Greg Lynch and Jim Christie.

PROJECTS

YGS completed another successful field season with 24 projects undertaken. They are listed below along with other ongoing projects that are nearing completion. Their locations are shown in Figure 3. This year included a diversity of work that reflects our new mandate to

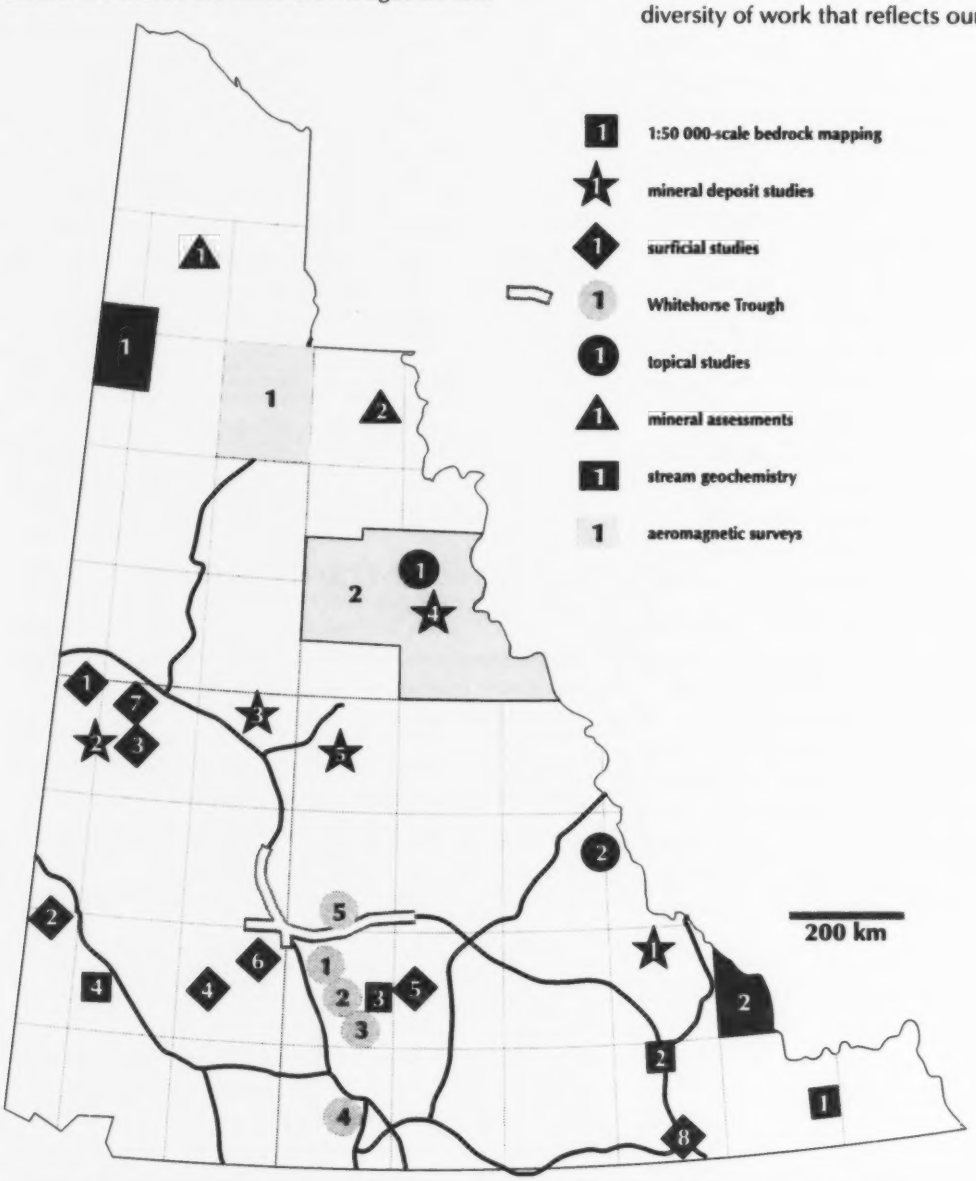

Figure 3. *Field projects carried out or sponsored by the Yukon Geological Survey in 2005.*

support hydrocarbon development and to meet increased demands for baseline data to address environmental and development issues while continuing to support our primary client, the mineral industry. Projects included 1:50 000-scale bedrock mapping, mineral deposit studies, surficial studies and mapping, regional stream sediment geochemistry, and topical geology studies. In addition, several office-based projects were undertaken to advance the Yukon Geoscience database.

BEDROCK MAPPING

1. Lee Pigage continued work in southeast Yukon near Toobally Lakes, where studies last year revealed significant new information on lower Paleozoic structure and stratigraphy, with implications for our understanding of the mineral potential of southeast Selwyn Basin.

2. Don Murphy continued work in Watson Lake map area, outlining the belts of volcanic rocks in Yukon-Tanana Terrane that host volcanogenic massive sulphide (VMS) deposits in the Finlayson Lake district, and determining both the internal structure of the terrane and its relationships to Slide Mountain Terrane and the rocks of the North American continental margin.

3. Maurice Colpron mapped in the Livingstone Creek area, where a lode source for gold placers in the area has yet to be found. This work builds on previous studies of Yukon-Tanana Terrane farther north and will help to set the stage for a future mapping program immediately to the west in the northern Whitehorse Trough.

4. Steve Israel continued mapping in the Kluane Ranges to better define the setting of magmatic copper- nickel-platinum group element deposits like Wellgreen. This project is also investigating the possibility that Windy Craggy stratigraphy occurs in the project area by focusing on the relationship between Alexander and Wrangellia and the Triassic volcanic successions found within both terranes. A secondary study of neotectonics within and surrounding the Alaska Highway corridor is also underway in partnership with the US Geological Survey.

MINERAL DEPOSIT STUDIES

1. Craig Hart and Lara Lewis continued to gather data on tungsten and beryl properties for future compilations. Fieldwork in the Hyland River area concentrated on the numerous gold properties in this undermapped area that appear to be structurally controlled rather than intrusion-related.

2. Jim Mortensen (UBC) and Bill LeBarge are studying trace element characteristics of placer gold in the Klondike to identify distinct populations and potential lode sources.

3. John Mair (MDRU/YGS), a post-doctoral fellow from Australia, is developing a database of the lithological, geochemical and isotopic characteristics of Cretaceous igneous rocks in the Yukon to help to differentiate mineralized plutons from unmineralized ones.

4. Julie Hunt continued her studies of iron oxide-copper-gold occurrences associated with the Wernecke Breccias. This work is expanding on earlier research that identified lithological, structural and fluid compositional influences on mineralization in the Wernecke Mountains with a focus on uranium.

5. Jake Hanley (U. of Toronto) with partial support from YGS is beginning a post-doctoral study at the University of Toronto on the evolution and generation of magmatic fluids and their relationship to gold mineralization.

WHITEHORSE TROUGH OIL AND GAS POTENTIAL PROJECT

1. Grant Lowey continued studies of the sedimentology and stratigraphy of the Laberge Group and Tantalus Formation.

2. Darrel Long (Laurentian U.) continued studies of the Lewes River Group and Tantalus Formation.

3. Steve Piercey (Laurentian U.) is studying the chemistry and origin of volcanic assemblages in the Whitehorse Trough.

4. Amy Tizzard (U. of Victoria) is nearing completion of her M.Sc. thesis on the tectonic evolution of the western margin of Stikinia.

5. The Geological Survey of Canada/Yukon Geological Survey seismic survey across northern Whitehorse Trough is now processed and results will be published in various publications over the next year.

SURFICIAL STUDIES

1. Bill LeBarge visited active placer mining operations throughout the Yukon to sample pay gravel and heavy minerals, complete stratigraphic descriptions, and update the placer database. Ongoing studies by Bill, coordinated with Mark Nowosad of Client Services and Inspections, will further define the relationship between water quality and placer sediment on the Klondike, Indian, McQuesten, and Sixty Mile rivers and put the information into a geological context.

2. Erin Trochim and Panya Lipovsky, in partnership with the GSC, began compilation of Yukon Department of Highways borehole data from the Alaska Highway corridor as part of a national permafrost database compilation. This data will assist with development of predictive models for permafrost distribution and allow testing of geophysical techniques for detecting permafrost.

3. Jeff Bond began a study of element distribution patterns in soil profiles on the Lone Star, Clip and Lucky Joe properties. This project will aid understanding of how to interpret soil geochemical data obtained from the unglaciated terrain of west-central Yukon.

4. Brent Ward (Simon Fraser U.) in collaboration with Jeff Bond and John Gosse (Dalhousie University) sampled boulders for cosmogenic dating in the Aishihik Lake area in an attempt to determine the age of the Reid Glaciation. This information is essential to developing a clear understanding of placer deposit evolution in west-central Yukon. This study also addresses broader questions pertaining to northwestern North America's climate history.

5. Jeff Bond began a glacial history reconstruction project for the Big Salmon Range in order to describe the ice-flow history for the McConnell glaciation. This will better enable mineral exploration companies to trace float and soil anomalies to their sources, and also provide insights into placer potential for the Big Salmon Range.

6. Panya Lipovsky monitored an active permafrost thaw-related landslide near Carmacks. She also monitored turbidity levels in the sediment-laden creek issuing from the landslide, which drains into an important salmon spawning ground.

7. Panya Lipovsky collaborated with Antoni Lewkowicz (U. of Ottawa) on studies documenting the effect of extensive recent forest fires on slope stability in areas underlain by permafrost. Large numbers of active-layer detachment slides have already increased sedimentation into drainages surrounding Dawson and could impact efforts to monitor the effects of placer mining on water quality. Dr. Lewkowicz is also studying the origin and dynamics of thermokarst lakes and palsen in the Wolf Creek watershed and developing new permafrost mapping techniques in southwest Yukon.

8. Panya Lipovsky recently completed a 1:50 000-scale surficial map at Watson Lake as a contribution to a Department of Environment (Government of Yukon) project to develop standards for a biophysical mapping framework for southeast Yukon. Biophysical mapping is an important planning tool that integrates physical and biological parameters to allow systematic classification of land for forest management and other activities.

TOPICAL STUDIES

1. Dejan Milidragovic under the direction of Dr. Derek Thorkelson (Simon Fraser U.) began a petrologic study of lamprophyre dykes in the Wernecke Mountains.

2. Luke Beranek (UBC) under the direction of Dr. Jim Mortensen began a doctoral study of Triassic sedimentary overlap assemblages in central Yukon to better understand the timing and nature of terrane accretion in the Canadian Cordillera.

REGIONAL STREAM GEOCHEMISTRY

1. GSC, in collaboration with Geoff Bradshaw, completed a survey in north Yukon, west of Fishing Branch Territorial Park, to assist with development of the North Yukon Regional Land Use Plan

2. GSC in collaboration with Geoff Bradshaw completed a survey of the Flat River map area, south of the Cantung mine. This area has known high potential for tungsten and gold.

The results of both surveys will be released in early summer of 2006.

REGIONAL AEROMAGNETIC SURVEYS

Funding was awarded by DIAND under the Strategic Investments for Northern Economic Development Program (SINED) for Aeromagnetic surveys in the Wernecke/Mackenzie Mountains (1) and Eagle Plains area (2). The surveys are expected to be flown early in 2006.

MINERAL/OIL AND GAS ASSESSMENTS

Geoff Bradshaw and Lee Pigage are participating in regional land use planning for (1) North Yukon and (2) the Peel River watershed to address mineral and oil and gas potential, respectively. Geoff carried out regional mineral assessments that included field work in both areas to better understand mineral potential. Lee helped to interpret existing oil and gas assessments. The North Yukon Planning Commission is aiming for a draft plan by summer of 2006, whereas the Peel Planning Commission is in the early stage of collecting baseline data.

PROGRAMS

MINING AND PETROLEUM ENVIRONMENT RESEARCH GROUP (MPERG)*

In early 2005, the group expanded its mandate beyond mining to include environmental research in support of the petroleum industry and changed its name to reflect this partnership. Administration of the Mining and Petroleum Environmental Research Group (MPERG) is done by Karen Pelletier. Six studies were approved for funding for 2005/06. A Post-Fire Evaluation of the Bioengineering Trials at Noname Creek, previously funded by MPERG, was undertaken by Laberge Environmental Services. Following extensive local forest fires in 2004, increased surface runoff was anticipated on the permafrost slope which characterizes the area, providing opportunity to continue field monitoring of the erosion and to optimize the bioengineering applications already in place. Laberge Environmental Services also began a new bioengineering study on Gold Run Creek in the Klondike area. This study will examine bioengineering techniques that aim to mitigate large-magnitude disturbances in permafrost areas that are easily accessed by local miners, and prove that reclamation and erosion control can be accomplished using low-maintenance technology at relatively little expense. The Klondike Placer Miners' Association received funding to develop a protocol for the identification of physical constraints of settling ponds in order to assist placer miners and regulators operating under the new placer regime. T. Lewkowicz from the University of Ottawa initiated a multi-faceted study on Permafrost distribution and dynamics in the Yukon, undertaken by a group of M.Sc. students. The study includes four projects that relate to the response of the permafrost landscape to climate change. These have applications in enhancing knowledge on the distribution of permafrost in the Yukon. This will be relevant to linear infrastructure development, such as the proposed Alaska Highway Gas Pipeline. A. Clark and T. Hutchinson of Trent University completed a three-year M.Sc. study, previously funded by MPERG, on Enhancing Natural Succession on Yukon Mine Tailings Sites and were awarded further funding to continue and expand the project. The study was initiated in 2003 at the Mount Skukum, United Keno Hill, and Wellgreen mine sites, with the overall objective to examine site-specific successional trajectories and to direct the succession pathways to obtain long-term, low-input solutions. Ducks Unlimited Canada received funding to study waterfowl moulting and fall staging in the Turner Lakes complex on the Peel Plateau. The objective is to gather information about the use of the Turner Lakes wetlands by moulting and staging water birds in the summer and fall. The information gathered will provide some environmental information for mitigating oil and gas activities during key water bird seasons, and will provide ecological values for developing a long-term management plan for the wetlands, as part of the Peel River watershed land-use planning.

Previously, Mining Environment Research Group (MERG)

YUKON MINING INCENTIVES PROGRAM (YMIP)

The Yukon Mining Incentives Program is currently administered by Steve Traynor. This year, funding was offered to 63 of 75 applications for a total of $1,009,000. Twelve of the successful applications were in the Grassroots-Prospecting, 12 in the Focused Regional and 39 in the Target Evaluation modules. Eighty-four percent of these applicants were Yukon-based individuals or companies.

The continuing trend of increasing gold prices, combined with copper prices that have doubled in the past two years, has resulted in high levels of exploration targeting these two commodities. This trend mirrored the focus of 39 of the 54 exploration projects which proceeded this year and included 10 applicants who explored for alluvial gold. Six projects explored for lead-zinc, three for molybdenum, three for silver and three for uranium and other commodities.

LIAISON TO INDUSTRY, FIRST NATIONS AND THE PUBLIC

YGS recognizes the importance of effectively communicating information on the geology and mineral and energy resources of the Yukon to a broad audience that includes industry, resource managers, First Nations and the general public. We are continuing to focus more attention on developing strategies and products that meet these needs.

Mike Burke and Bill LeBarge, our main links to the exploration industry, continued to monitor Yukon hard-rock and placer mining and mineral exploration activity, visit active properties, review reports for assessment credit, and maintain the assessment report library.

Karen Pelletier, Charlie Roots and other YGS staff continue to make presentations in the schools and conduct field trips in the communities. New products developed this year to increase public awareness of the geology and mineral resources of the Yukon include an interpretive guide to the Whitehorse Copper Belt by Danièle Héon; a geological map and interpretive display of Tombstone Park by Charlie Roots; and a geological map of southwest Yukon with emphasis on the Kluane Ranges and Kluane Park in partnership with the Geological Survey of Canada.

Karen Pelletier continues to review Mining Land Use and Water License applications, and monitor reclaimed sites to document the effectiveness of mitigation practices. Karen also represents YGS on several committees which sponsor environmental research that involves geology. Karen has also been involved in developing a best practices guide for reclamation of placer mines.

INFORMATION MANAGEMENT AND DISTRIBUTION

With the increasing volume of information generated by YGS and others, and rapidly evolving digital technology, the Survey has placed considerable effort into making geological information more accessible. A large part of our effort has gone into developing and maintaining key databases and making all of our information internet-accessible. The extent of coverage of bedrock and surficial maps, regional geochemistry and geophysics are summarized in Figure 4. Ongoing activities include support for the H.S. Bostock Core Library (Range Road) and the Energy, Mines and Resources (EMR) library (Elijah Smith Building).

DATABASES

With new reporting requirements to securities regulators, widely recognized mineral deposit models are becoming increasingly important. In cooperation with the British Columbia Geological Survey, Anna Fonseca and Geoff Bradshaw have adapted the British Columbia Geological Survey Mineral Deposit profiles to the Yukon. These models are now incorporated into Yukon MINFILE and published separately as Open File 2005-5.

Yukon MINFILE, the Yukon's mineral occurrence database, is maintained by Robert Deklerk and Steve Traynor. An update was released in November, 2005. The database now contains 2612 records, of which more than 500 have been revised, and is complete to the end of 2004. All mineral occurrences are now assigned to a deposit model. Reserve tables have been completely revised and updated to match, as closely as possible, the Canadian Institute of Mining Standards for Reporting Mineral Resources and Reserves. All known assessment reports are now cited for each occurrence. In the past, some reports were not listed in an occurrence's reference field due to confidentiality rules in effect at that time.

The Yukon Placer Database, compiled under the direction of Bill LeBarge, was updated in May of 2005. The database is in Microsoft Access 2000 format and is a comprehensive record of the geology and history of Yukon placer mining. The database contains descriptions of 456 streams and rivers, and 1430 associated placer occurrences, of which 238 were updated for this version. It also includes location maps in Portable Document Format (PDF). A new release is planned for spring 2006 which will include detailed updated information from placer mining activity between 2003 and 2005.

The Yukon GEOPROCESS File, under the direction of Diane Emond, is an inventory of information on geological processes and terrain hazards. It includes 1:250 000-scale maps showing permafrost, landslides, recent volcanic rocks, structural geology, and seismic events, and also includes references and summaries of bedrock and surficial geology. The GEOPROCESS File is intended as a planning aid for development activities and is available for most areas south of 66° latitude. The maps are now standardized in colour, and available on a single compact disk. Maps with text are in AutoCAD 2000 and PDF formats.

The Yukon Digital Geology compilation was updated in 2003 by Steve Gordey and Andrew Makepeace of the Geological Survey of Canada, with funding from YGS. It

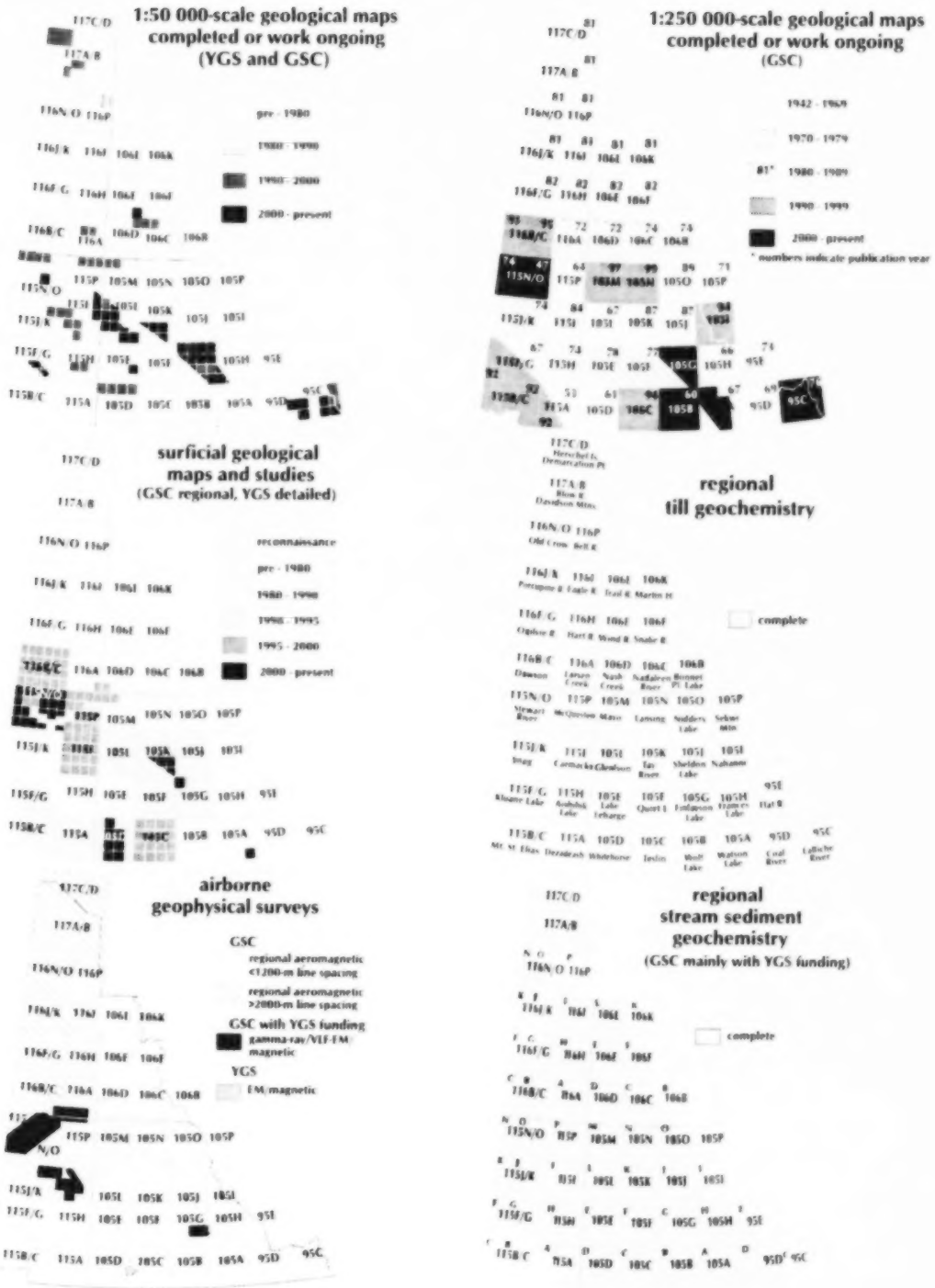

Figure 4. *Summary of available geological maps, and regional geochemical and geophysical surveys in the Yukon.*

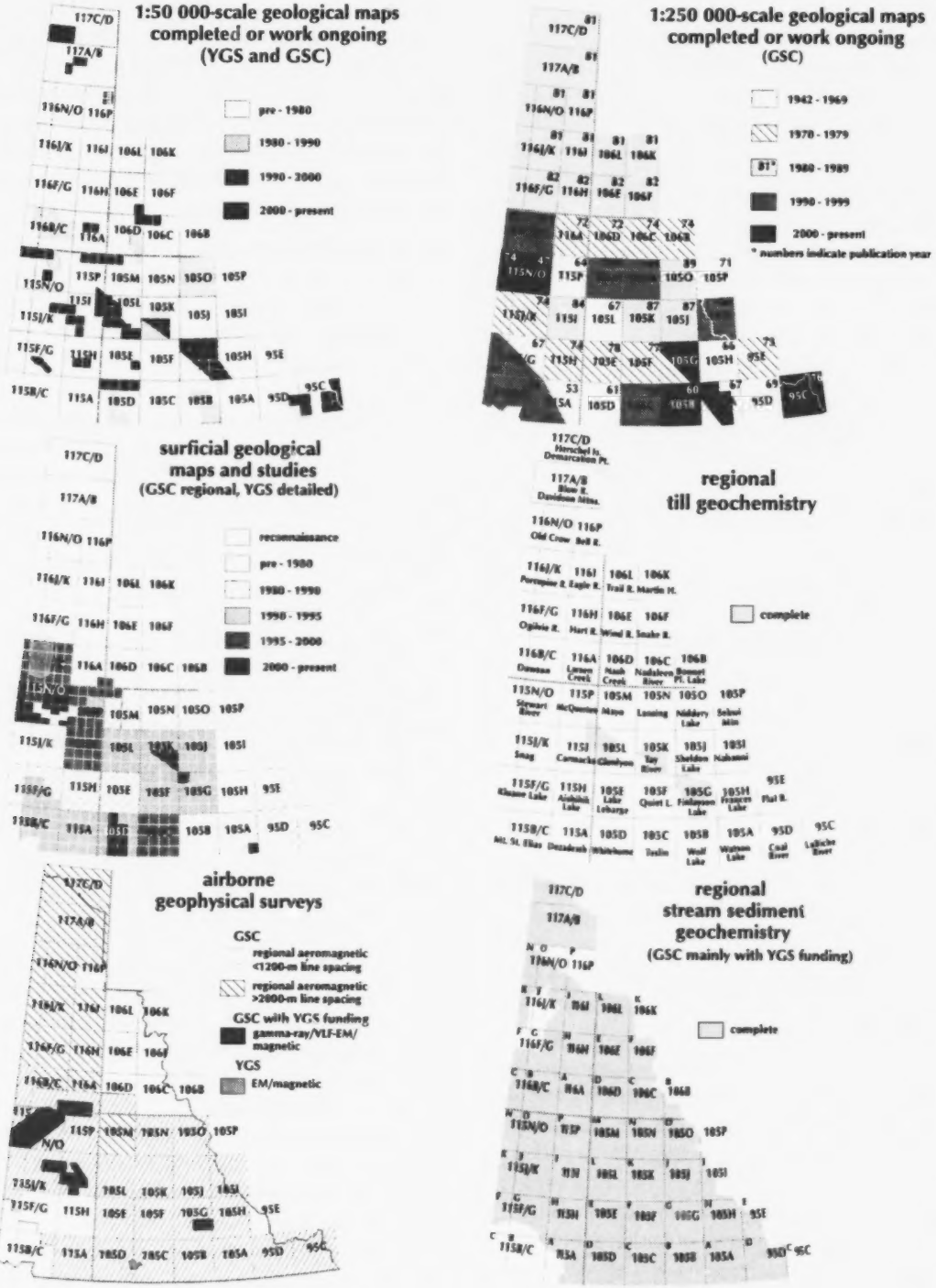

Figure 4. *Summary of available geological maps, and regional geochemical and geophysical surveys in the Yukon.*

includes syntheses of bedrock geology and glacial limits, compilations of geochronology, paleontology and mineral occurrences, and a compendium of aeromagnetic images, as well as an oil and gas well database. All are now available on CD-ROM. Bedrock geology and glacial limit paper maps are also available at 1:1 000 000 scale.

The Yukon Regional Geochemical Database 2003, compiled by Danièle Héon, contains all of the available digital data for regional stream sediment surveys that have been gathered in the Yukon under the Geological Survey of Canada's National Geochemical Reconnaissance Program. It is available on CD-ROM in Microsoft Excel 2000 format and in ESRI ArcView Shapefile format. The database has been enhanced this year through a contract with Georeference Online. Multi-element anomaly clusters were generated using Minematch software and matched with mineral deposit models. This exercise was essentially the same as one undertaken on the British Columbia stream geochemical database through the Rocks to Riches Program. Results are now available online through the YGS Map Gallery.

The YukonAge Database, compiled by Katrin Breitsprecher and Jim Mortensen at the University of British Columbia with funding from YGS, was updated in 2004. It can be viewed online at the YGS Map Gallery in a version modified by Mike Villeneuve and Linda Richard of the Geological Survey of Canada. The database now contains 1556 age determinations derived from 1166 rock samples from the Yukon Territory. It is available in both Microsoft Access 2000 format and as a flat file in Microsoft Excel 2000 format so that the data may be viewed without Microsoft Access.

The Yukon Geoscience Publications Database, originally compiled by Lara Lewis and Diane Emond, is current to 2005 and contains more than 5000 references to papers on Yukon geology and mineral deposits, including YGS publications. A completely up-to-date searchable version is now available on our website.

This year, YGS is continuing to digitize the backlog of assessment reports. By February 2006, the entire collection of more than 5000 reports will be in PDF format and accessible over the internet. In addition, we have acquired exploration records from the various companies that owned the Faro District. This acquisition includes both records of the Faro District, as well as outside projects. Most of the records are now available for viewing.

H. S. BOSTOCK CORE LIBRARY

Mike Burke and Ken Galambos maintain the H.S. Bostock Core Library. The facility contains about 128 000 m of diamond drill core from about 200 Yukon mineral occurrences. Confidentiality of material is determined on the same basis as mineral assessment reports. Confidential core can be viewed with a letter of release from the owner. Rock saws and other rock preparation equipment are available to the public.

EMR LIBRARY

The EMR library in the Elijah Smith Building is an invaluable resource that is available to the public, but often overlooked. It is Yukon's largest scientific library and includes collections that, prior to devolution, belonged to Indian and Northern Affairs Canada and the Department of Energy, Mines and Resources, Yukon Government. The library houses Yukon assessment reports, maps (including geological, topographical and aeromagnetic), and aerial photographs. It contains most geological journals and a good selection of references on general geology, Yukon geology and economic geology. The library is also the point of contact for access to Faro exploration records, which were recently acquired by YGS. In addition to geological information, the library also has books, reports and journals for the following subjects: oil and gas, forestry, agriculture and energy.

INFORMATION DISTRIBUTION

YGS distributes information in three formats: 1) paper maps and reports are sold and distributed through our Geoscience Information and Sales Office; 2) many recent publications and databases are available in digital format at much lower prices than for paper copies; and 3) most of our publications are available as PDF files on our website (www.geology.gov.yk.ca), free of charge. A catalogue of assessment reports is also available online (http://www.emr.gov.yk.ca/library).

We are pleased to make spatial data available through the Map Gallery interactive map server, which can be accessed through the YGS website. We are continuing to improve the Map Gallery. Users are encouraged to provide feedback and suggest improvements.

Hard copies of YGS publications are available at the following address:

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Grant Abbott, A/Director
Yukon Geological Survey
2099 Second Avenue
P.O. Box 2703 (K10)
Whitehorse, Yukon Y1A 2C6

Ph. (867) 667-3200
E-mail: grant.abbott@gov.yk.ca

Rod Hill, Manager
Yukon Geological Survey
2099 Second Avenue
P.O. Box 2703 (K10)
Whitehorse, Yukon Y1A 2C6

Ph. (867) 667-5384
E-mail: rod.hill@gov.yk.ca

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2005 PUBLICATIONS AND MAPS

YGS OPEN FILES

Abbott, J.G. (ed.), 2005. Yukon Geoscience Needs: Results of the third Yukon Geoscience Planning Workshop. Yukon Geological Survey, Open File 2005-4, 55 p.

Colpron, M., 2005. Geological map of Livingstone Creek area (NTS 105E/8), Yukon (1:50 000 scale). Yukon Geological Survey, Open File 2005-9.

Fonseca, A. and Bradshaw, G., 2005. Yukon Mineral Deposit Profiles. Yukon Geological Survey, Open File 2005-5.

Israel, S., Tizzard, A. and Major, J., 2005. Geological map of the Duke River area (parts of NTS 115G/2,3,5,6,7), Yukon (1:50 000 scale). Yukon Geological Survey, Open File 2005-11.

Kennedy, K., 2005. Surficial Geology of Seagull Creek (Parts of NTS 105F/10 and 7), Yukon. Yukon Geological Survey, Open File 2005-1, 1:50 000 scale.

Lipovsky, P.S. and McKenna, K., 2005. Local Scale Biophysical Mapping for Integrated Resource Management, Watson Lake (NTS 105A/2), Yukon. Yukon Geological Survey, Open File 2005-6 (includes report, 2 maps (Open Files 2005-7 and 8) and CD-ROM with digital files (Open File 2005-6(D)).

Lipovsky, P.S., McKenna, K. and Huscroft, C.A., 2005. Surficial geology of Watson Lake (NTS 105A/2), Yukon (1:50 000 scale). Yukon Geological Survey, Open File 2005-7.

McKenna, K., Lipovsky, P.S. and Huscroft, C.A., 2005. Preliminary biophysical map of Watson Lake area (NTS 105A/2), Yukon (1:50 000 scale). Yukon Geological Survey, Open File 2005-8.

Mortensen, J.K. and Murphy, D.C. (compilers), 2005. Bedrock geological map of part of Watson Lake area (all or part of NTS 105A/2,3,5,6,7,10,11,12,13,14), southeastern Yukon (1:150 000 scale). Yukon Geological Survey, Open File 2005-10.

Osadetz, K.G., Chen Z. and Bird T.D., 2005. Petroleum Resource Assessment, Eagle Plain Basin and Environs, Yukon Territory, Canada. Yukon Geological Survey, Open File 2005-2; Geological Survey of Canada, Open File 4922, 88 p.

Osadetz, K.G., MacLean B.C., Morrow D.W., Dixon J. and Hannigan P.K., 2005. Petroleum Resource Assessment, Peel Plateau and Plain, Yukon Territory, Canada. Yukon Geological Survey, Open File 2005-3; Geological Survey of Canada, Open File 4841, 76 p.

YGS GEOSCIENCE MAPS

Bond, J., Morison, S. and McKenna, K., 2005. Surficial Geology of Carcross (NTS 105D/2), Yukon (1:50 000 scale). Yukon Geological Survey, Geoscience Map 2005-2.

Bond, J., Morison, S. and McKenna, K., 2005. Surficial Geology of Fenwick Creek (NTS 105D/3), Yukon (1:50 000 scale). Yukon Geological Survey, Geoscience Map 2005-3.

Bond, J., Morison, S. and McKenna, K., 2005. Surficial Geology of Alligator Lake (NTS 105D/6), Yukon (1:50 000 scale). Yukon Geological Survey, Geoscience Map 2005-4.

Bond, J., Morison, S. and McKenna, K., 2005. Surficial Geology of Robinson (NTS 105D/7), Yukon (1:50 000 scale). Yukon Geological Survey, Geoscience Map 2005-5.

Bond, J., Morison, S. and McKenna, K., 2005. Surficial Geology of MacRae (NTS 105D/10), Yukon (1:50 000 scale). Yukon Geological Survey, Geoscience Map 2005-6.

Bond, J., Morison, S. and McKenna, K., 2005. Surficial Geology of Whitehorse (NTS 105D/11), Yukon (1:50 000 scale). Yukon Geological Survey, Geoscience Map 2005-7.

Bond, J., Morison, S. and McKenna, K., 2005. Surficial Geology of Upper Laberge (NTS 105D/14), Yukon (1:50 000 scale). Yukon Geological Survey, Geoscience Map 2005-8.

Devine, F., Murphy, D.C., Carr, S.D., Kennedy, R. and Tizzard, A., 2005. Geological Map of the southern Campbell Range (NTS 105H/3 SW), southeastern Yukon (1:20 000 scale). Yukon Geological Survey, Geoscience Map 2005-1.

YGS DATABASES

Deklerk, R. and Traynor, S. (compilers), 2005. Yukon MINFILE 2005 – A database of mineral occurrences. Yukon Geological Survey, CD-ROM.

LeBarge, W.P. and Coates J. (compilers), 2005. Yukon Placer Database 2005 – Geology and mining activity of placer occurrences. Yukon Geological Survey, CD-ROM.

ANNUAL REPORTS

Traynor, S. (compiler), 2005. Yukon Mineral Deposits 2005. Yukon Geological Survey, 16 p.

Traynor, S. (compiler), 2005. Yukon Mineral Property Update 2004. Yukon Geological Survey, 81 p.

YGS CONTRIBUTIONS TO OUTSIDE PUBLICATIONS

Colpron, M., Gladwin, K., Johnston, S.T., Mortensen, J.K. and Gehrels, G.E., 2005. Geology and juxtaposition history of Yukon-Tanana, Slide Mountain and Cassiar terranes in the Glenlyon area of central Yukon. Canadian Journal of Earth Sciences, vol. 42, p. 1431-1448.

Goldfarb, R.J., Baker, T., Dubé, B., Groves, D.I., **Hart, C.J.R.** and Gosselin, P., 2005. Distribution, Character, and Genesis of Gold Deposits in Metamorphic Terranes. Economic Geology 100th Anniversary Volume, J.W. Hedenquist, J.F.H. Thompson, R.J. Goldfarb and J.P. Richards (eds.).

Groat, L.A., **Hart, C.J.R.**, **Lewis, L.L.** and Neufeld, H., 2005. Emerald and Aquamarine Mineralization in Canada, Geoscience Canada, vol. 32, no. 2, p. 17-28.

Hart, C.J.R., Mair, J.L., Goldfarb, R.J. and Groves, D.I., 2005. Source and Redox Controls of Intrusion-Related Metallogeny, Tombstone-Tungsten Belt, Yukon, Canada. Fifth Hutton Symposium Volume, Transactions of the Royal Society of Edinburgh, Earth Science, vol. 95, p. 339-356. Also available as Geological Society of America Special Paper 389.

Hunt, J.A., Baker, T. and Thorkelson, D.J., 2005. Regional-scale Proterozoic IOCG-mineralised breccia systems: examples from the Wernecke Mountains, Yukon, Canada. Mineralium Deposita, vol. 40, no. 5, p. 492-514.

Huscroft, C. and **Lipovsky P.**, 2005. Changement de climat et glissements de terrain dans le corridor de la route de l'Alaska, au Yukon – Climate change and landslides in the Alaska Highway corridor, Yukon. Meridian, Meridien Spring/Summer, p. 14-18.

Laughton, J.R, Thorkelson, D.J., Brideau, M., **Hunt, J.A.** and Marshall, D.D., 2005. Proterozoic orogeny and exhumation of Wernecke Supergroup revealed by vent facies of Wernecke Breccia, Yukon, Canada. Canadian Journal of Earth Sciences, the Lithoprobe Slave - Northern Cordillera Lithospheric Evolution (SNORCLE) transect, vol. 42, p. 1033-1044.

Mao, J., Goldfarb R.J., Wang Y., **Hart, C.J.**, Wang Z. and Yang J., 2005. Late Paleozoic base and precious metal deposits, East Tianshan, Xin-jiang, China: Characteristics and geodynamic setting. Episodes, vol. 28, no. 1, p. 23-49.

McCausland, P.J.A., Symons, D.T.A. and **Hart, C.J.R.**, 2005. Rethinking "Yellowstone in Yukon" and Baja British Columbia: Paleomagnetism of the Late Cretaceous Swede Dome stock, northern Canadian Cordillera. Journal of Geophysical Research, vol. 110, B12107, doi:10.1029/2005JB003742, 13 p., online.

Piercey, S.J., **Murphy D.C.**, Mortensen, J.K. and Creaser R.A., 2004. Mid-Paleozoic initiation of the northern Cordilleran marginal backarc basin: Geologic, geochemical, and neodymium isotope evidence from the oldest mafic magmatic rocks in the Yukon-Tanana terrane, Finlayson Lake district, southeast Yukon, Canada. Geological Society of America Bulletin, vol. 116, no. 9, p. 1087–1106.

Pigage, L.C. and Mortensen J.K., 2004. Superimposed Neoproterozoic and Early Tertiary alkaline magmatism in the La Biche River area, southeast Yukon Territory. Bulletin of Canadian Petroleum Geology, vol. 52, p. 325-342.

Symons, D.T.A., Harris, M.J., McCausland, P.J.A., Blackburn, W.H. and **Hart, C.J.R.**, 2005. Cenozoic paleomagnetism of the Intermontane and Yukon Tanana terranes, Canadian Cordillera. Canadian Journal of Earth Sciences, the Lithoprobe Slave – Northern Cordillera Lithospheric Evolution (SNORCLE) transect, vol. 42, p. 1163-1185.

Symons, D.T.A., Harris, M.J., McCausland, P.J.A., Blackburn, W.H. and **Hart, C.J.R.**, 2005. Mesozoic-Cenozoic paleomagnetism of the Intermontane and Yukon-Tanana terranes, Canadian Cordillera. Canadian Journal of Earth Sciences, vol. 42, p. 1163-1185.

Thorkelson, D.J., **Abbott, J.G.**, Mortensen, J.K., Creaser, R.A., Villeneuve, M.E., McNicoll, V.J. and Layer, P.W., 2005. Early and Middle Proterozoic evolution of Yukon Canada. Canadian Journal of Earth Sciences, the Lithoprobe Slave - Northern Cordillera Lithospheric Evolution (SNORCLE) transect, vol. 42, p. 1045-1071.

YGS ABSTRACTS

Hart, C.J.R., 2005. Classifying, distinguishing and exploring for intrusion-related gold systems. GAC-MAC-CSPG-CSSS Joint Meeting, Halifax, Nova Scotia, Abstracts vol. 30, p. 81.

Groves, D.I., Mair, J.L., Hart, C.J.R. and Vielreicher, N., 2005. The lithospheric settings of Carlin-type deposits: An important clue to their genetic associations. Extended Abstract, Geological Society of Nevada.

Burke, M., Hart, C.J.R. and Lewis, L.L., 2005. Models for epigenetic gold exploration in the northern Cordilleran Orogen, Yukon, Canada. *In:* Mineral Deposit Research, Meeting the Global Challenge, J.W. Mao and F. Berlien (eds.), extended abstract, SGA Beijing Conference, Beijing, China, p. 525-528.

Mueller, S.H., Goldfarb, R.J., Hart, C.J.R., Mair, J.L., Marsh, E.E. and Rombach, C.S., 2004. The Tintina Gold Province, Alaska and Yukon – New World-Class Gold Resources and Their Sustainable Development. PACRIM 2004, AusIMM Conference Proceedings, Adelaide, Australia, p. 189-198.

Hart, C.J.R. and Goldfarb, R.J., 2005. Distinguishing intrusion-related from orogenic gold deposits. 2005 New Zealand Minerals Conference Proceedings, Auckland, New Zealand, p. 125-133.

Simard, R.-L., Dostal, J. and Colpron, M., 2005. The Little Salmon Formation, northern Canadian Cordillera, Magmatism in an intra-arc rift basin within a Mississippian continental arc system. GAC-MAC-CSPG-CSSS Joint Meeting, Halifax, Nova Scotia, Abstracts, vol. 30, p. 177

Thorkelson, D.J., Abbott J.G., Mortensen, J.K., Creaser, R.A., Villeneuve, M.E., McNicoll, V.J. and Layer, P.W., 2005. Early and Middle Proterozoic evolution of northwestern Laurentia. GAC-MAC-CSPG-CSSS Joint Meeting, Halifax, Nova Scotia, GAC Abstracts, vol. 30, p. 193.

YUKON GEOLOGICAL PAPERS OF INTEREST

Abraham, A.-C., Francis, D. and Polvé, M., 2005. Origin of recent alkaline lavas by lithospheric thinning beneath the northern Canadian Cordillera. Canadian Journal of Earth Sciences, The Lithoprobe Slave - Northern Cordillera Lithospheric Evolution (SNORCLE) transect vol. 42, p. 1073-1095.

Carey, S.K. and Quinton, W.L., 2005. Evaluating runoff generation during summer using hydrometric, stable isotope and hydrochemical methods in a discontinuous permafrost alpine catchment. Hydrological Processes, January 2005, vol. 19, Issue 1, p. 95-114.

Carey, S.K. and Woo, M., 2005. Freezing of subarctic hillslopes, Wolf Creek basin, Yukon, Canada. Arctic, Antarctic, and Alpine Research, vol. 37, p. 1-10.

Cassidy, J.F. and Rogers, G.C., 2004. The M (sub w) 7.9 Denali Fault earthquake of 3 November 2002; felt reports and unusual effects across Western Canada. Bulletin of the Seismological Society of America, December 2004, vol. 94, issue 6, part B, p. 53-57.

Cassidy, J.F., Rogers, G.C. and Ristau, J., 2005. Seismicity in the vicinity of the SNORCLE corridors of the northern Canadian Cordillera. Canadian Journal of Earth Sciences, The Lithoprobe Slave - Northern Cordillera Lithospheric Evolution (SNORCLE) transect, vol. 42, p. 1137-1148.

Clowes, R.M., Hammer, P.T.C., Fernández-Viejo, G. and Welford, J.K., 2005. Lithospheric structure in northwestern Canada from Lithoprobe seismic refraction and related studies: A synthesis. Canadian Journal of Earth Sciences, The Lithoprobe Slave - Northern Cordillera Lithospheric Evolution (SNORCLE) transect, vol. 42, p. 1277-1293.

Cook, F.A., Hall, K.W. and Lynn, C.W., 2005. The edge of northwestern North America at 1.8 Ga. Canadian Journal of Earth Sciences, The Lithoprobe Slave - Northern Cordillera Lithospheric Evolution (SNORCLE) transect, vol. 42, p. 983-997.

Cook, F.A. and Erdmer, P., 2005. An 1800 km cross section of the lithosphere through the northwestern North American plate: lessons from 4.0 billion years of Earth's history. Canadian Journal of Earth Sciences, The Lithoprobe Slave – Northern Cordillera Lithospheric Evolution (SNORCLE) transect, vol. 42, p. 1295-1311.

Creaser, B. and Spence, G., 2005. Crustal structure across the northern Cordillera, Yukon Territory, from seismic wide-angle studies: Omineca Belt to Intermontane Belt. Canadian Journal of Earth Sciences, The Lithoprobe Slave - Northern Cordillera Lithospheric Evolution (SNORCLE) transect, vol. 42, p. 1187-1203.

Day, S.J. and Bowell, R.J., 2005. Atypical and typical zinc geochemistry in a carbonate setting, Sä Dena Hes mine, Yukon Territory, Canada. Geochemistry: Exploration, Environment, Analysis, vol. 5, p. 255-266.

Eberl, D.D., 2004. Quantitative mineralogy of the Yukon River system; changes with reach and season, and determining sediment provenance. American Mineralogist, December 2004, vol. 89, issue 11-12, p. 1784-1794.

English, J.M., Johannson, G.G., Johnston, S.T., Mihalynuk, M.G., Fowler, M. and Wight, K.L., 2005. Structure, stratigraphy and petroleum resource potential of the Central Whitehorse Trough, Northern Canadian Cordillera. Bulletin of Canadian Petroleum Geology, vol. 53, p. 130-153.

Hyndman, R.D., Flück, P., Mazzotti, S., Lewis, T.L., Ristau, J. and Leonard, L., 2005. Current tectonics of the northern Canadian Cordillera. Canadian Journal of Earth Sciences, The Lithoprobe Slave - Northern Cordillera Lithospheric Evolution (SNORCLE) transect, vol. 42, p. 1117-1136.

Hynes, G.F. and Dixon, J.M., 2005. Geological mapping and analogue modeling of the Liard, Kotaneelee and Tlogotsho ranges, Northwest Territories. Bulletin of Canadian Petroleum Geology, vol. 53, p. 67-83.

Jones, A.G., Ledo, J., Ferguson, I.J., Farquharson, C., Garcia, X., Grant, N., McNeice, G., Roberts, B., Spratt, J., Wennberg, G., Wolynec, L. and Wu, X., 2005. The electrical resistivity structure of Archean to Tertiary lithosphere along 3200 km of SNORCLE profiles, northwestern Canada. Canadian Journal of Earth Sciences, The Lithoprobe Slave - Northern Cordillera Lithospheric Evolution (SNORCLE) transect. vol. 42, p. 1257-1275.

Jowett, D.M.S. and Schröder-Adams, C.J., 2005. Paleoenvironments and regional stratigraphic framework of the Middle–Upper Albian Lepine Formation in the Liard Basin, Northern Canada, Bulletin of Canadian Petroleum Geology, vol. 53, p. 25-50.

Karunaratne, K.C. and Burn, C.R., 2004. Relations between air and surface temperature in discontinuous permafrost terrain near Mayo, Yukon Territory. Canadian Journal of Earth Sciences, vol. 41, p. 1437-1451.

Kinnard, C. and Lewkowicz, A.G., 2005. Movement, moisture and thermal conditions at a turf-banked solifluction lobe, Kluane Range, Yukon Territory, Canada. Permafrost and Periglacial Processes, September 2005, vol. 16, issue 3, p. 261-275.

Lane, L.S., 2005. Central Foreland NATMAP Project; stratigraphic and structural evolution of the Cordilleran foreland; Part 2. Bulletin of Canadian Petroleum Geology, vol. 53, p. 1-3.

Lantuit, H. and Pollard, W.H., 2005. Temporal stereophotogrammetric analysis of retrogressive thaw slumps on Herschel Island, Yukon Territory. Natural Hazards and Earth System Sciences NHESS, vol. 5, issue 3, p. 413-423.

Orberger, B., Gallien, J.P., Pinti, D.L., Fialin, M., Daudin, L., Grocke, D.R. and Pasava, J., 2005. Nitrogen and carbon partitioning in diagenetic and hydrothermal minerals from Paleozoic black shales, Selwyn Basin, Yukon Territory, Canada. Chemical Geology, vol. 218, p. 249-264.

MacKenzie, J.M., Canil, D., Johnston, S.T., English, J., Mihalynuk, M.G. and Grant, B., 2005. First evidence for ultrahigh-pressure garnet peridotite in the North American Cordillera. Geology. February 2005, vol. 33, issue 2, p. 105-108.

Sack, R.O., 2005. Internally consistent database for sulfides and sulfosalts in the system Ag_2S-Cu_2S-ZnS-FeS-Sb_2S_3-As_2S_3; update. Geochimica et Cosmochimica Acta, March 2005, vol. 69, issue 5, p. 1157-1164.

Schiappa, T.A., Hemmesch, N.T., Spinosa, C. and Nassichuk, W.W., 2005. Cisuralian ammonoid genus Uraloceras in North America. Journal of Paleontology, March 2005, vol. 79, issue 2, p. 366-377.

Shapiro, B., Drummond, A.J., Rambaut, A., Wilson, M.C., Sher, A., Pybus, O.G., Gilbert, T.P., Barnes, I., Binladen, J., Willerslev, E., Hansen, A.J., Baryshnikov, G.F., Burns, J.A., Davydov, S., Driver, J.C., Froese, D.G., Harington, C.R., Keddie, G., Kosintsev, P., Kunz, M.L., Martin, L.D., Stephenson, R.O., Storer, J., Tedford, R., Zimov, S. and Cooper, A., 2004. Rise and fall of the Beringian steppe bison. Science, vol. 306, p. 1561-1565.

Snyder, D.B., Roberts, B.J. and Gordey, S.P., 2005. Contrasting seismic characteristics of three major faults in northwestern Canada. Canadian Journal of Earth Sciences, The Lithoprobe Slave – Northern Cordillera Lithospheric Evolution (SNORCLE) transect, vol. 42, p. 1223-1237.

Utting, J., Zonneveld, J.P., MacNaughton, R.B. and Fallas, K.M., 2005. Palynostratigraphy, lithostratigraphy and thermal maturity of the Lower Triassic Toad and Grayling, and Montney formations of western Canada, and comparisons with coeval rocks of the Sverdrup Basin, Nunavut. Bulletin of Canadian Petroleum Geology, vol. 53, p. 5-24.

Zazula, G.D., Froese, D.G., Westgate, J.A., La Farge, C. and Mathewes, R.W., 2005. Paleoecology of Beringian "packrat" middens from central Yukon Territory, Canada. Quaternary Research, vol. 63, p. 189-198.

Zhang, S., Pyle, L.J. and Barnes, C.R., 2005. Evolution of the early Paleozoic Cordilleran margin of Laurentia: Tectonic and eustatic events interpreted from sequence stratigraphy and conodont community patterns. Canadian Journal of Earth Sciences, The Lithoprobe Slave - Northern Cordillera Lithospheric Evolution (SNORCLE) transect, vol. 42, p. 999-1031.

GSC CONTRIBUTIONS TO YUKON GEOLOGY

Fallas, K.M., Pigage, L.C. and Lane, L.S. (compilers), 2005. Geology, La Biche River northwest (95 C/NW), Yukon and Northwest Territories. Geological Survey of Canada, Open File 5018, 1:100 000-scale map.

Froese, D.G., 2005. Surficial geology, Medrick Creek, Yukon Territory (115O/16). Geological Survey of Canada, Open File 4593, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Australia Mountain, Yukon Territory (115O/9). Geological Survey of Canada, Open File 4586, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Black Hills Creek, Yukon Territory (115O/7). Geological Survey of Canada, Open File 4584, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Borden Creek, Yukon Territory (115N/10). Geological Survey of Canada, Open File 4578, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Crag Mountain, Yukon Territory (115N/15). Geological Survey of Canada, Open File 4579, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Enchantment Creek, Yukon Territory (115N/16). Geological Survey of Canada, Open File 4580, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Excelsior Creek, Yukon Territory (115O/5). Geological Survey of Canada, Open File 4582, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Flat Creek, Yukon Territory (115O/15). Geological Survey of Canada, Open File 4592, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Garner Creek, Yukon Territory (115O/13). Geological Survey of Canada, Open File 4590, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Grand Forks, Yukon Territory (115O/14). Geological Survey of Canada, Open File 4591, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Granville, Yukon Territory (115O/10). Geological Survey of Canada, Open File 4587, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Ladue River Yukon Territory (115N/2). Geological Survey of Canada, Open File 4574, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Los Angeles Creek, Yukon Territory (115O/4). Geological Survey of Canada, Open File 4581, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Marion Creek, Yukon Territory (115N/8). Geological Survey of Canada, Open File 4576, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Reindeer Mountain, Yukon Territory (115O/11). Geological Survey of Canada, Open File 4588, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Rice Creek, Yukon Territory (115N/7). Geological Survey of Canada, Open File 4588, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Rosebud Creek, Yukon Territory (115O/8). Geological Survey of Canada, Open File 4585, 1:50 000-scale map.

Jackson, L.E., Jr., 2005. Surficial geology, Stewart River, Yukon Territory (115O/6). Geological Survey of Canada, Open File 4583, 1:50 000-scale map.

Jackson, L.E., Jr., Morison, S.R. and Mougeot, C., 2005. Surficial geology, Matson Creek, Yukon Territory (115N/9). Geological Survey of Canada, Open File 4577, 1:50 000-scale map.

Jackson, L.E., Jr., Morison, S.R. and Mougeot, C., 2005. Surficial geology, Ogilvie, Yukon Territory (115O/12). Geological Survey of Canada, Open File 4589, 1:50 000-scale map.

Osadetz, K.G., Chen, Z. and Bird, T.D., 2005. Petroleum Resource Assessment, Eagle Plain Basin and Environs, Yukon Territory, Canada. Yukon Geological Survey, Open File 2005-2; Geological Survey of Canada, Open File 4922, 88 p.

Osadetz, K.G., MacLean B.C., Morrow D.W., Dixon J. and Hannigan P.K., 2005. Petroleum Resource Assessment, Peel Plateau and Plain, Yukon Territory, Canada. Yukon Geological Survey, Open File 2005-3; Geological Survey of Canada, Open File 4841, 76 p.

YUKON THESES

Hart, C.J.R., 2005. Mid-Cretaceous Magmatic Evolution and Intrusion-related Metallogeny of the Tintina Gold Province, Yukon and Alaska. Unpublished PhD thesis, The University of Western Australia, Perth, Australia, 198 p.

Hunt, J., 2005. The geology and genesis of iron oxide-copper-gold mineralisation associated with Wernecke Breccia, Yukon, Canada. Unpublished PhD thesis, James Cook University, Australia, 120 p.

Hynes, G.F., 2004. Geological field mapping and physical analogue modelling of the Liard, Kotaneelee, and Tlogotsho Ranges, southwest Northwest Territories, Canada. Unpublished M.Sc. thesis, Queen's University, Kingston, Ontario, 168 p.

Livingston, J.M., 2004. Floodbed sedimentology: A new method to reconstruct paleo-ice-jam flood frequency. Unpublished M.Sc. thesis, University of Calgary, Calgary, Alberta, 2004, 159 p.

Ruks, T.W., 2005. Petrology and tectonic significance of potassic feldspar augen granitoids in the Yukon-Tanana Terrane, Stewart River, Yukon Territory. Unpublished M.Sc. thesis, Laurentian University, Sudbury, Ontario, 150 p.

YUKON GEOLOGICAL ABSTRACTS OF INTEREST

Duk-Rodkin, A., Barendregt, R.W. and Froese, D.G., 2005. Yukon and Mackenzie River systems: Glacially diverted drainages resulting from the first Cordilleran glaciation and the last continental ice sheet. GAC-MAC-CSPG-CSSS Joint Meeting, Halifax, Nova Scotia, GAC Abstracts vol. 30, p. 47.

Marsh, E.E., Allan, M.M., Goldfarb, R.J., Jensen, P., Mair, J.L. and Shepherd, T.J., 2005. LA-ICP-MS microanalysis of single fluid inclusions from intrusion-related gold deposits, Tintina gold province, Alaska and Yukon. Geological Society of America Abstracts with Programs, vol. 37, No. 7, p. 501.

Rasmussen, P.E., Edwards, G.C., Schroeder, W.W., Steffen, A., Ausma, S., Dias, G. and El Bilali, L., 2005. Atmospheric mercury fluxes from carbonaceous shales in Yukon Territory. GAC-MAC-CSPG-CSSS Joint Meeting, Halifax, Nova Scotia, GAC Abstracts, vol. 30, p. 163.

Westgate, J.A. and Peece, S.J.A., 2005. Cautionary tale of two tephras: the scientific method eking out errors in the late Cenozoic tephrochronological record of eastern Beringia. Geological Society of America, Abstracts with Programs, vol. 37, no. 7, p. 38.

La Commission géologique du Yukon

***Grant Abbott*[1] *et Maurice Colpron*[2]**
Le Service de géologie du Yukon

Abbott, J.G. et Colpron, M., 2006. La Commission géologique du Yukon. *Dans :* Yukon Exploration and Geology 2005, D.S. Emond, G.D. Bradshaw, L.L. Lewis et L.H. Weston (réds.), la Commission géologique du Yukon, p. 67-70.

APERÇU

La commission géologique du Yukon (CGY; Figure 1, p. 51) a fait de grands progrès dans son évolution, lorsqu'en septembre de cette année elle est devenue une Direction au sein de la Division du pétrole, du gaz et des minéraux du ministère de l'Énergie, des Mines et des Ressources (MEMR). La CGY ne fait plus partie de la Division des ressources minérales. Son mandat est maintenant augmenté; elle fournie dorénavant de l'information en support des activités d'exploration, de développement et de gérance, non seulement des ressources minérales, mais aussi des ressources pétrolières et gazières, et de façons plus limitées, d'autres ressources telle que les forêts. La CGY est présentement en cours de réorganisation de façon à mieux répondre à son mandat élargit et à ses plus grandes responsabilités administratives. La CGY est maintenant sous-divisée entre quatre Services : soit les Services techniques, les Services minéraux, la Géologie régionale, et les Services d'évaluation du potentiel minéral et en hydrocarbures (Figure 2, p. 52). Durant cette période de transition, Don Murphy assumera le poste de gérant de la Géologie régionale, et Craig Hart celui de gérant des Services techniques et minéraux. Les autres Services se rapportent directement à Grant Abbott, qui fût nommé directeur intérimaire de la Commission géologique. Rod Hill demeure en charge de la gérance des opérations.

L'année passée fût aussi marquée par de nombreux changements au sein du personnel. La CGY est heureuse d'acceuillir Tammy Allen et Tiffany Fraser à titre de géologue d'évaluation du potentiel pétrolier, deux positions contribuées par la Direction du pétrole et du gaz du MEMR. Ken Galambos est temporairement à l'emploi du ministère du Développement économique, jusqu'au 31 mars 2006. Steve Traynor le remplace à titre de coordonnateur du Programme d'encouragement des activités minières du Yukon, alors que Jo-Anne van Randen remplace Steve à titre de géologue économique. Amy Stuart est de retour parmis nous pour un contrat à court terme en tant que technicienne en système d'information géographique, et Monique Raitchey est temporairement à l'emploi d'un autre ministère jusqu'à l'automne 2006; elle est remplacée de façon experte par Kelly Coventry. John Mair, un associé post-doctoral de l'unité de recherche en gîtes minéraux de l'Université de Colombie-Britannique, fût aussi parmis nous pour une partie de l'année. Félicitations à Craig Hart pour avoir complété sa thèse de doctorat à l'Université d'Australie-occidentale de Perth et pour avoir reçu deux prix de l'Association géologique du Canada: le prix Julian Boldy pour une des trois meilleures présentations en géologie économique à la réunion annuelle de l'Association, et un autre prix pour ses années de services en tant qu'éditeur de GEOLOG, le périodique d'information de l'Association. Julie Hunt a elle aussi complétée sa thèse de doctorat à l'Université James Cook en Australie; nous la félicitons!

La CGY continue de recevoir un financement de base stable, quoiqu'un déficit de financement au niveaux des salaires à l'échelle du ministère nous a forcé à éliminer une position vacante de

[1]*grant.abbott@gov.yk.ca*
[2]*maurice.colpron@gov.yk.ca*

technicien en système d'information géographique. On espère pouvoir redistribuer nos ressources au cours de l'année à venir, afin de rétablir cette position. Nous avons aussi souffert une perte de financement à court terme avec la disparition des Fonds pour le savoir et l'innovation du ministère des Affaires indiennes et du Nord canadien (MAINC) et de l'initiative géoscientifique ciblée du ministère canadien des Ressources naturelles (RNCan); financement qui fût amplement remplacé par les rélevés géophysiques subventionnés par le nouveau programme de développement économique du Nord du MAINC. Bien que la troisième phase du programme d'initiative géoscientifique ciblée de RNCan n'était pas offerte au Yukon, et que la stratégie de cartographie géologique coopérative de RNCan n'a pas reçu de financement du gouvernement fédéral, on demeurent toutefois optimistes que des nouveaux fonds seront disponibles soit par l'entremise du programme de développement économique du Nord du MAINC ou dans le cadre de la stratégie du Nord du gouvernement du Yukon et du MAINC.

Un comité de liaison technique à la CGY examine nos programmes deux fois par année. Nous remerçions le président, Gerry Carlson, et les membres du comité pour leur précieux appui et les conseils constructifs qu'ils nous fournissent. Cette année, Moira Smith et Bernie Kreft ont quittés le comité; ils sont remplacés par Rob Carne et Shawn Ryan, qui sont deux des explorateurs les plus expérimentés au Yukon. Nous attendons avec plaisir leurs conseils experts. Les autres membres du comité sont Al Doherty, Jean Pautler, Forest Pearson, Jim Mortensen, Jim Christie et Greg Lynch.

TRAVAUX SUR LE TERRAIN

La CGY a connue cette année une autre campagne de travaux sur le terrain couronnée de succès avec 24 projets en cours, énumérés ci-dessous et indiqués en Figure 3. Nos travaux furent diversifiés de façon à mieux répondre à notre nouveau mandat de soutien à la mise en valeur des hydrocarbures et à la demande accrue pour les données de base à l'appui de la réglementation dans le domaine de l'environnement et de la gestion des terres, tout en continuant nos projets en support de l'industrie minérale. Nos travaux cette année incluent quatre projets de cartographie géologique du substratum rocheux au 1 : 50 000, des études de gisements minéraux, des études et travaux de cartographie des formations superficielles, la géochimie régionale des cours d'eau et des études géologiques détaillées. De plus, de nombreux projets de bureau avaient pour but l'amélioration de la base de données géoscientifiques du Yukon.

CARTOGRAPHIE DU SUBSTRATUM ROCHEUX

Lee Pigage a poursuivit sa cartographie de la région des lacs Toobally dans le sud-est du Yukon, alors que Don Murphy a étendu sa cartographie des roches du terrane de Yukon-Tanana, les roches hôtes des gisements de sulfures massifs de la région du lac Finlayson, vers le sud dans région du lac Watson. Pour sa part, Maurice Colpron a complété la carte du ruisseau Livingstone, où la source de l'or placérien demeure un mystère. Dans le sud-ouest, Steve Israel poursuit la cartographie des monts Kluane dans le but de mieux définir le mode d'emplacement des gisement de cuivre, nickel, et des éléments du groupe du platine, tel que Wellgreen.

ÉTUDES DE GISEMENTS MINÉRAUX

Craig Hart et Lara Lewis ont poursuivis leurs travaux sur le tungstène et le béryl; une étude de terrain dans la région de la rivière Hyland fût concentrée sur une minéralisation en or dont le contrôle semble être structural plutôt qu'intrusif. Jim Mortensen de l'Université de Colombie-Britannique a étudié en collaboration avec Bill LeBarge (CGY) les caractéristiques des éléments traces des gîtes d'or placériens afin d'identifier des populations distinctes et d'éventuelles sources d'or filonien. John Mair a entammé le développement d'une base de données sur les caractères lithologiques, géochimiques, et isotopiques des roches ignées d'âge Crétacé du Yukon. Julie Hunt poursuit ses travaux sur la géologie et le potentiel minéral des brèches de Wernecke, avec cette fois un focus sur l'uranium. Et Jake Hanley de l'Université de Toronto, avec le support de la CGY, en entrepris une étude sur l'origine et l'évolution des fluides magmatiques, et leurs relations avec la minéralisation aurifère.

PROJET DU BASSIN DE WHITEHORSE

Grant Lowey a continué ses études sédimentologiques et stratigraphiques du Groupe de Laberge et de la Formation de Tantalus, alors que Darrell Long de l'Université Laurentienne a poursuivit ses études du Groupe de Lewes River et de la Formation de Tantalus. Steve Piercey, lui aussi de l'Université Laurentienne, étudie pour sa part la géochimie des roches volcaniques du bassin de Whitehorse. Amy Tizzard de l'Université de Victoria aura bientôt completée sa thèse de maîtrise portant sur l'évolution structurale de la marge occidentale du terrane

de Stikinia. La compilation des relevés sismiques à l'extrémité nord du bassin de Whitehorse, exécutés par la Commission géologique du Canada (CGC) en partenariat avec la CGY, est maintenant complétée; les résultats de cette étude seront publiés dans une series de rapports au cours de l'année à venir.

ÉTUDES DES FORMATIONS SUPERFICIELLES

Bill LeBarge a visité les opérations minières placériennes à travers le Yukon et a poursuivit ses études avec Mark Nowosad, des Services aux clients et d'inspection du MEMR, afin de mieux caractériser le contexte géologique et la relation entre la qualité des eaux et les effluents de sédiments des opérations de placers le long des rivières Klondike, Indian, McQuesten and Sixty Mile. Erin Troshim et Panya Lipovsky, en collaboration avec la CGC, ont entammées une compilation des informations de forages le long de la route de l'Alaska pour contribuer à la base de données nationale sur le pergélisol. Jeff Bond a débuté une étude sur la distribution des éléments dans le sol dans les terrains non-glaciaires du centre-ouest du Yukon, afin de dévellopper une méthode d'interprétation des données géochimiques du sol dans ce type de terrain. Jeff a aussi étudié l'histoire glaciaire de la chaîne de Big Salmon. Brent Ward, de l'Université Simon Fraser, en collaboration avec Jeff Bond et John Gosse (Université de Dalhousie), a échantilloné des blocs dans la région du lac Aishihik pour de la datation cosmogénique afin d'établir l'âge de l'époque glaciaire de Reid. Panya Lipovsky a récemment complétée sa carte géologique des formations superficielles au 1 : 50 000 de la région de Watson Lake dans le cardre d'un projet de cartographie biophysique du sud-est du Yukon du ministère de l'Environnement du gouvernement du Yukon. Panya a aussi poursuivit la surveillance d'un glissement de terrain actif liés à la fonte du pergélisol près de Carmacks et a participée avec Antoni Lewkowicz de l'Université d'Ottawa à une étude des effets des récents feux de forêts sur la stabilité des terrains pergélisols. Docteur Lewkowicz étudie aussi l'origine et la dynamique des lacs thermokastiques et des palses dans le bassin du ruisseau Wolf, en plus de dévellopper de nouvelles techniques pour la cartographie du pergélisol.

ÉTUDES DÉTAILLÉES

Dejan Milidragovic a débuté une étude pétrologique des dykes de lamprophyres des monts Wernecke sous la direction du Docteur Derek Thorkelson de l'Université Simon Fraser. Luke Beranek a pour sa part entammé une étude doctorale des roches sédimentaires triassiques du centre du Yukon sous la direction du Docteur Jim Mortensen de l'Université de Colombie-Britannique.

RELEVÉS GÉOCHIMIQUES

Des relevé géochimiques régionaux des cours d'eau furent complétés par la CGC en collaboration avec Geoff Bradshaw (CGY) à l'ouest du parc territorial de Fishing Branch dans le nord Yukon et dans la région de la rivière Flat, au sud de Cantung. Les résultats de ces relevés devrait être disponibles en début d'été 2006.

RELEVÉS GÉOPHYSIQUES

Deux relevés magnétiques aériens dans les monts Wernecke et Mackenzie et dans la région d'Eagle Plains sont financés par le MAINC dans le cardre de son programme d'investissements stratégiques dans le développement économique du Nord. L'acquisition des ces relevés est prévue pour le printemps 2006.

ÉVALUATIONS MINÉRALES ET EN HYDROCARBURES

Geoff Bradshaw et Lee Pigage sont tous deux impliqués dans les initiatives de planification de l'utilisation des terres pour le nord du Yukon et le bassin de la rivière Peel; Geoff agit en tant qu'évaluateur du potentiel minéral, alors que Lee est en charge de l'évaluation du potentiel en hydrocarbures.

DIFFUSION DE L'INFORMATION

La Commission géologique du Yukon diffuse de l'information en trois formats : 1) les cartes et rapports sur papier sont vendus par le Bureau d'information et des ventes en géoscience; 2) la plupart de nos publications et bases de données récentes sont disponibles en format numérique à prix réduit; et 3) plusieurs de nos publications sont disponibles sans frais sous format PDF sur notre site internet (http://www.geology.gov.yk.ca). La liste des rapports d'évaluation de propriétés minières disponibles en format numérique est maintenant aussi offerte par internet (http://www.emr.gov.yk.ca/library).

Nous sommes fier de diffuser de l'information géospatialle par l'entremise de notre service de carte interactive ('Map Gallery'), que l'on accède par le site internet de la CGY. Ce site de carte interactive est continuellement le sujet d'améliorations; nous apprécions les commentaires des usagers.

Les publications de la Commission géologique du Yukon sont diffusées par le Bureau d'information et des ventes en géoscience. Elles sont disponible à l'addresse suivante :

Bureau d'information et des ventes en géosciences
a/s Conservateur des registres miniers
le ministère de l'Énergie, des Mines et des Ressources
le gouvernement du Yukon

300, rue Main - bur. 102
C.P. 2703 (K102)
Whitehorse (Yukon) Y1A 2C6
Téléphone : (867) 667-5200
Télécopieur : (867) 667-5150
Courriel : geosales@gov.yk.ca

Pour en savoir plus sur la Commission géologique du Yukon, visitez notre page d'accueil à www.geology.gov.yk.ca ou communiquez directement avec :

Grant Abbott, Directeur
Commission géologique du Yukon
2099, 2ème Avenue
C.P. 2703 (K10)
Whitehorse (Yukon) Y1A 2C6
Téléphone : (867) 667-3200
Courriel : grant.abbott@gov.yk.ca

Rod Hill, Gestionnaire
Commission géologique du Yukon
2099, 2ème Avenue
C.P. 2703 (K10)
Whitehorse (Yukon) Y1A 2C6
Téléphone : (867) 667-5384
Courriel : rod.hill@gov.yk.ca

Robert E. Leckie Award for Outstanding Reclamation Practices

Judy St. Amand[1]
Mining Lands, Energy Mines and Resources

St. Amand, J., 2006. Robert E. Leckie Awards for Outstanding Reclamation Practices. *In:* Yukon Exploration and Geology 2005, D.S. Emond, G.D. Bradshaw, L.L. Lewis and L.H. Weston (eds.), Yukon Geological Survey, p. 71-75.

QUARTZ RECLAMATION PRACTICES AWARD

EAGLE PLAINS RESOURCES LTD.

The Rusty Springs silver-lead-zinc property, located north of Dawson City, was first discovered in 1975 and was explored by several companies from 1975 through to 1986. A winter road and airstrip were constructed in 1978, and an all weather airstrip constructed in 1983.

In 1994, the property was transferred to Eagle Plains Resources. Eagle Plains conducted several exploration programs, which included diamond drilling and trenching. Each of these programs has included a major component of environmental clean-up and reclamation. The company, through good management practices, has steadily cleaned up the legacy of the 1975 through 1986 exploration.

In 2005, the company removed over 100 old fuel drums, and up to 2000 lbs of steel rods and various metal pieces, an old jeep, many plastic buckets and other debris from around drill sites. The crew cleaned up the old camp and burned the wood, tidied up the road and airstrip. They then cleaned up their drill sites and camp site. Every backhaul flight removed waste (Fig. 1). They also recovered a rod sloop and Longyear 38 Frame that had been abandoned for over 20 years.

Eagle Plains is a very worthy recipient of this award!

Figure 1. *View of the airstrip at Rusty Springs post reclamation.*

[1]judy.stamand@gov.yk.ca

Honourable Mention: Strategic Metals Ltd.

Strategic Metals Ltd. is a Vancouver-based company doing grassroots exploration on the Logtung property, near Rancheria, in southeastern Yukon.

The site has seen activity since the 1970s, and the legacy of those years was apparent. Strategic Metals has been cleaning up the site for several years (Fig. 2). In 2004, they removed 300 45-gallon drums, part of a bulk sample left on site. Many of these drums suffered water damage and were spilling their contents. They were stacked on pallets that were rotting. The drums, drum lids and metal bandings were crushed and removed to the Whitehorse landfill or recycled. The plastic liners were removed from site and the pallets burned.

Due to the efforts of the Strategic Metals crew, the site is now safer and far more pristine at no public cost.

Figure 2. *Logtung after years of cleanup by Strategic Metals.*

PLACER RECLAMATION PRACTICES AWARD

GIMLEX ENTERPRISES LTD.

Dr. Jim Christie and family operated as **Gimlex Enterprises Ltd.** on Dominion Creek in the Klondike area from 1996 until 2004, mining a large portion of the wide valley bottom, a short distance upstream from the confluence with Sulphur Creek.

Old mine cuts have been sloped to shallow grades, creating natural looking ponds with vegetation growing right up to the water (Fig. 3). These ponds are already providing seasonal waterfowl habitat.

Tailing piles and other waste piles were contoured to low relief and stockpiled overburden was spread throughout the area, which has resulted in rapid natural revegetation over wide areas.

In addition to the seasonal reclamation work done during the term of their water licence, a considerable amount of work was done to create a system of stable ditches. These provide ongoing control of surface drainage and prevent erosion of reclaimed areas.

Gimlex Enterprises is a great model for this industry and for ongoing reclamation.

Figure 3. *View of Gimlex Enterprises' property on Dominion Creek. Notice the naturally revegetating ponds and contoured slopes.*

Honourable Mention: 365334 Alberta Ltd.

Operator **Ross Edenoste of A-1 Cats**, has mined on Dominion Creek in the Dawson Mining district since 2002.

Since the start of operations, A-1 Cats management have worked to ensure that reclamation is addressed on an ongoing basis. Stripping and tailings piles are kept in low relief (Fig. 4). Organic overburden is stockpiled for spreading on contoured areas to facilitate rapid re-vegetation.

The camp was set up near mine cuts from a previous lessee of the property. These cuts had been reclaimed to the standard required prior to Mining Land Use.

A-1 Cats is reclaiming the property to present-day standards. Areas have been re-contoured, organic material has been spread and in some areas seeded, leaving an area of ponds with low-relief accesses that will facilitate their use by wildlife at cessation of mining. Areas that may never have re-vegetated are now flourishing.

The work A-1 Cats has done on the previously mined portion of the property has improved and accelerated the reclamation potential of this site.

Figure 4. *Steep structures have been recontoured to low-relief angles, and vegetation is flourishing from the addition of overburden spread on the surface.*

RÉSUMÉ

Le prix Robert E. Leckie pour des pratiques exemplaires en matière d'exploration du quartz et de restauration minière a été décerné en 2005 à Eagle Plains Resources Ltd. pour la remise en état de sa propriété de Rusty Springs, au nord de la ville de Dawson (Yukon). Découverte en 1975, la minéralisation de Rusty Springs a ensuite été explorée par plusieurs sociétés de 1975 à 1986. Une route d'hiver et une piste d'atterrissage ont été aménagées en 1978, de même qu'une piste d'atterrissage tous temps en 1983. La propriété a été cédée à Eagle Plains Resources en 1994 qui a mené plusieurs programmes d'exploration au cours des années suivantes, comprenant notamment des forages au diamant et l'excavation de tranchées. Chacun des programmes de la société comportait un important volet de dépollution environnementale et de remise en état, corrigeant une situation héritée des activités d'exploration menées de 1975 à 1986. En 2005, plus de 100 vieux barils de carburant et jusqu'à 2000 lbs (1000 kg) de tiges d'acier ainsi que diverses pièces de métal, une vieille jeep, de nombreux seaux de plastique et d'autres débris ont été retirés des sites de forage. Une équipe a nettoyé l'ancien camp, brûlé les débris de bois et remis en ordre la route et la piste d'atterrissage. Elle a ensuite nettoyé les sites de forage et le camp minier de la société. Des déchets étaient évacués lors de chaque vol de retour. La société a également récupéré un support de transport de tiges ainsi qu'un dispositif de forage Longyear 38 abandonné depuis plus de 20 ans. La société Eagle Plains Resources Ltd. mérite très certainement d'être récipiendaire de ce prix.

Le prix Robert E. Leckie pour des pratiques exemplaires en matière de restauration de placers a été décerné en 2005 à Gimlex Enterprises Ltd. pour la remise en état de son exploitation de placer, au sud de la ville de Dawson. M. Jim Christie (Ph. D.) et sa famille ont exploité sous le nom de Gimlex Enterprises Ltd., de 1996 à 2004, une grande partie du large fond de la vallée du ruisseau Dominion, à une courte distance vers l'amont de sa confluence avec le ruisseau Sulphur. Les pentes des anciennes tailles de l'exploitation minière ont été atténuées, créant des étangs d'apparence naturelle où la végétation atteint maintenant le bord de l'eau. Ces étangs constituent déjà des habitats saisonniers pour la sauvagine. On a réduit la hauteur des amas de stériles et d'autres déchets, et on a étendu les tas de morts-terrains sur l'ensemble de la zone, ce qui a permis une végétalisation naturelle et rapide sur de grandes superficies. En plus des travaux saisonniers de restauration exécutés pendant la durée du permis d'exploitation hydraulique, des travaux considérables ont été exécutés pour créer un réseau de fossés stables qui assurent un contrôle continu du drainage superficiel et préviennent l'érosion des zones remises en état. La société Gimlex Enterprises Ltd. représente un modèle à suivre pour l'industrie minière et pour la restauration permanente des sites.